192th Division Meeting  
Dynamics Systems and Control Division, ASME International  
2017 Dynamic Systems and Control Conference  
*Tysons, Virginia, Sheraton Tysons*

**Date and Time:** Wednesday, October 11, 2017 at 7:00 pm  
**Location:** Fairfax Ballroom A

**AGENDA**

**7:00 PM** Social – light refreshments will be provided.

**7:30 PM** 1. Preliminaries and Self-Introductions  
Peter Meckl

**7:40 PM** 1.1 Recognize student travel grant recipients  
Carrie Hall

1.2 Recognize office bearers  
The students stood up and were recognized.  
Peter Meckl

**7:50 PM** 2. Approval of Minutes  
The meeting minutes were approved.  
Peter Meckl

**Reports:**

**8:00 PM** 3. Division Activities

3.1 Secretary’s Report  
See the attached report.  
Jingang Yi

3.2 Treasurer’s Report  
See the attached report.  
Xiaobo Tan

3.3 American Automatic Control Council (AACC) Report  
A brief report was given, particularly the Division may take a lead to participate the IFAC activities.  
Dawn Tilbury

3.4 Division Interactions with ASME  
Tim Graves/Peter
Tim Graves from ASME gave an update on the new activities that are taking at ASME to foster the technical conferences and others by the Division.

3.5 Announcement from NSF

Jordan discussed the program director opening at NSF CMMI. He encouraged the researchers within the Division to serve the community.

4 Journal Reports

4.1 Journal of Dynamics Systems, Measurement, and Control
See the attached report.

4.2 Transactions on Mechatronics
See the attached report.

8:50 PM 5. Conference Activities (5 minutes per report)

5.1 2017 DSCC
Azim gave an oral update of the 2017 DSCC.

5.2 2018 DSCC
See the attached report.

5.3 2018 ACC
See the attached report.

5.4 2018 AIM
See the attached report.

5.5 2018 ISFA
See the attached report.

5.6 2019 DSCC Proposal
Peter encouraged all Division researchers to organize the future DSCCs.

9:15 PM 6. Public Relations and Outreach (5 minutes per report)

6.1 Newsletter
See the attached report.

6.2 DSCD Website
No update or report.

6.3 DSC Magazine
See the attached report.

9:30 PM 7. Standing Committee Reports (5 minutes per report)

7.1 Honors Committee
See the attached report.

7.2. Nominating Committee
Ranjan Mukherjee
Ranjan mentioned no unfilled positions within DSCD.

9:40 PM 8. Technical Committees
See the attached report.

Santosh Devasia

10:10 PM 9. Open discussion

Peter Meckl

10:20 PM 10. Closure

Peter Meckl

The meeting was adjourned around 9:30 pm

Jingang Yi
DSCD Secretary
The membership statistics of the Division, with some historical data is shown below. As of October 4, 2017, the division has 2032 primary members, 1670 secondary members, and a total of 7752 members. There are 509 student members, 257 of which are primary members and 81 of which are secondary members.
DSCD Treasurer’s Report – ACC 2017
Xiaobo Tan, ASME DSCD Treasurer

1. DSCD Segregated Account Overview

The starting balance of the account for

- FY 15 (July 1, 2014 – June 30, 2015): $851,951.26 (spending plan $112,120; actual balance drop $100,282)
- FY 16 (July 1, 2015 – June 30, 2016): $751,669.27 (spending plan $185,128; actual balance drop $195,348)
- FY 17 (July 1, 2016 – June 30, 2017): $556,321.01 (spending plan $133,120; actual balance drop: $101,760; actual expenditure: $130,980; revenue: $29,220)

Balance drop/change is mostly a result of (a) spending and (b) gain/loss from investment.

2. Details for FY 17

FY 2017 runs from July 1, 2016 through June 30, 2017. The starting balance of the account for FY 17 was $556,321.01. The ending balance for FY 17 was $454,561.

The revenue for FY 2017, was $29,220.17, including “membership contribution” $1,761, “dividend/interest” $3,836.04, “realized gain” $7,373.43, and “unrealized gain” $16,249.70.

The expenses for FY 2017, were $130,980.13.

<table>
<thead>
<tr>
<th>Cost item</th>
<th>Budgeted</th>
<th>Actual</th>
<th>Note</th>
</tr>
</thead>
</table>
| Conference meeting expenses | $11,000  | $13,277.28 | ACC 16: $9,809.78  
DSCC 16: $3,467.50 |
| Student travel support    | $21,000  | $22,210.11 | Supported 50 students’ travel to DSCC 2016, including Best Student Paper finalists |
| DSC magazine              | $78,500  | $71,850  | Sept 16: $18,600; Dec 16: $23,250; March 17: $15,000; June 17: $15,000 |
| Volunteer travel          | $8,000   | $11,741.73 | DSCD officers travel to ACC, AIM (TMECH Management Committee), and DSCC: $8077.43. Additionally, $781.88 volunteer sustenance, bringing total volunteer travel to $7,708.39. The rest was for covering part of Oldenburg lecturer travel ($1,105.35), Nyquist lecturer travel ($377.07), and an international plenary speaker ($1,400). |
| Awards and honor activities | $14,000  | $8,603.4  | TC Best Paper Awards $5,750; Division awards (Draper, Rabins, Paynter, Kalman, Nyquist) $2,750. And some cost for certificates etc. On the financial report, two $1,300 charges for DSCC 2016 plenary seem to be imposed by error. |
| External website          | $620     | $600     |                                                                      |
| Misc.                     | $0       | $88.21   | postage;                                                             |
A copy of FY 17 spending plan is attached. A copy of the ASME DSCD financial report (June 2017) is also attached to this report.

3. Annual Spending Plan for FY 2018

The spending limit for FY 2018, set as 25% of the account balance through March 2017 ($467,947.19), is **$116,986.79**. With the recent changes (or anticipated changes) on how ASME will handle the division’s ACC returns, the following is the list of budget items for FY 18:

- Audio/Visual and Food/Beverage at 2017 DSCC: $5,000
- Student travel support for attending 2017 DSCC: $6,000 (additional support of $15,000 will come from DSCC conference)
- DSC magazine: $60,000 (4 issues, hard copies to DSCD members only)
- Volunteer travel: $8,000
- Awards and honor activities: $8,000
- External website: $620

**Total: $87,620**

A more detailed spending plan is attached to this report.

4. ACC Returns and DSCC Budgeting

- Starting 2016 ACC, AACC has automatically reserved $8,000 from the ASME/DSCD return for ASME student travel support. For 2017 ACC, AACC deducted the actual ASME student support of $5,350 (instead of taking out $8,000).
- Starting 2017 ACC, AACC has further deducted the ASME DSCD meeting expenses at ACC before sending the return to ASME.
- According to an ASME working document on conference budgeting guidelines (yet to be officially approved), future ASME returns from AACC (minus the AACC membership fee of about $800) will be used as an income for budgeting DSCC conferences (for example, the projected 2017 return will be used in the budgeting of DSCC 2018).
- Additionally, the DSCC budgets will include the cost of plenary speakers. Down the road, when DSCC is healthy enough, its budget will also include the cost of meetings (A/V and F/B) at the conference. This will help build a more sustainable finance for the division.

Now with AACC return effectively back to the hands of DSCD, it is particularly important to encourage all DSCD Technical Committees to organize invited sessions at ACC. Here is the formula AACC uses to compute society returns:

- R: # of registrants from the society
- P: # of papers from the society
- S: # of special sessions from the society (invited sessions, tutorial sessions, or any other special sessions excluding workshop or lunch sessions)

\[
\text{Fraction of society return} = \frac{1}{3} \left( \frac{R}{\text{total}\#\text{registrants}} + \frac{P}{\text{total}\#\text{papers}} + \frac{S}{\text{total}\#\text{special sessions}} \right)
\]

As an example, for the 2016 ASME society return, the participation in the 2015 ACC was: 69 registrants (out of 718 total); 85 papers (out of 701 total), **22 special sessions (out of 61 total)**, resulting in ASME getting 19.3% of the total surplus. **If the special sessions were 6, our share would drop to about 10%. On the other hand, if the special sessions were 30,**
our share would rise to 23%, implying $8,600 more return to the division (~$1,000 per invited session!).
DSCD Annual Spending Plan for Fiscal Year 2017

DESCRIPTION OF ACTIVITIES

- **Meetings at the American Control Conference (ACC) and the ASME Dynamic Systems and Control Conference (DSCC) in July 2016 and October 2016, respectively.** These include DSCD general meetings, Executive Committee (ExComm) meetings, and meetings of all DSCD Technical Committees (TCs). Audio-Visual (A/V) cost and modest food & beverage (F/B) cost will be charged to the DSCD segregated account. Some TCs may hold meetings at other conferences closely related to their TC missions; A/V and F/B cost in those cases may also be charged to the DSCD account at the discretion of DSCD.

- **Student travel support for attending 2016 DSCC.** Travel support is provided to student authors who will be presenting papers at DSCC.

- **Dynamic Systems and Control (DSC) insert for Mechanical Engineering magazine.** For the first two issues in FY 17, all ASME members will receive a hard copy; for the third and fourth issues, only DSCD members will receive a hard copy. Each of the first two issues will cost $28,000; each of the last two issues will cost $11,250.

- **Volunteer travel.** DSCD ExComm members travel to ACC, DSCC, and other events for DSCD-related businesses. Member of ASME DSCD travels to IEEE/ASME Transactions on Mechatronics (TMECH) Management Committee meetings.

- **Awards and honor activities.** These include ASME society award (Rufus T. Oldenburger Medal), Division awards (Rudolf Kalman Best Paper Award; Nyquist Lecture; Yasundo Takahashi Education Award), DSCD officer gifts, and Best Paper Awards selected by DSCD Technical Committees.

- **External Web Tool.** DSCD will continue to use the external web services for FY 17.

SPENDING BUDGET

- A/V and F/B cost at conferences: $11,000.
- Student travel support: $21,000
- DSC insert for Mechanical Engineering magazine: $78,500.
- Volunteer travel: $8,000.
- Awards and honor activities: $14,000.
- External web tool: $620.

*** **Total: $133,120.**

[Spending limit: $138,248]
<table>
<thead>
<tr>
<th>Prior Year FY2016</th>
<th>FYE Actual</th>
<th>Reporting Year FY2017</th>
<th>FY2017</th>
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<td>JUN Budget</td>
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<td>Volunteer Travel &amp; Sustenance</td>
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## Statement of Revenue & Expense as of June 30 2017

### JUN Budget

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<td><strong>Report Sub-Total</strong></td>
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<td><strong>Balance Forward</strong></td>
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### Prior Year FY2016

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### Volunteer Travel & Sustenance

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<th>FYE Actual</th>
<th>FYTD JUN Actual</th>
<th>FYTD JUN Actual</th>
<th>JUN Budget</th>
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<th>FYTD JUN Bdgt</th>
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### Volunteer Unit Support

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<th>FYTD JUN Actual</th>
<th>JUN Budget</th>
<th>JUN Actual</th>
<th>FYTD JUN Bdgt</th>
<th>FYTD JUN Actual</th>
<th>Budget</th>
<th>Forecast</th>
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### Promotion & Advertising

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<th>FYTD JUN Actual</th>
<th>FYTD JUN Actual</th>
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### Miscellaneous Expense

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### Intercompany and Related Party Transfers

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### Balance Forward

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<th>FYE Actual</th>
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<th>FYTD JUN Actual</th>
<th>JUN Budget</th>
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<th>FYTD JUN Bdgt</th>
<th>FYTD JUN Actual</th>
<th>Budget</th>
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<tr>
<td>BEGINNING BALANCE</td>
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**Total Expense**: 194,557.80 **Total Expense**: 194,557.80 **Total Expense**: 194,557.80 **Total Expense**: 194,557.80 **Total Expense**: 194,557.80

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**Balance Forward**: 0.00 **Balance Forward**: 0.00 **Balance Forward**: 0.00 **Balance Forward**: 0.00 **Balance Forward**: 0.00

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**Total Dynamic Systems & Control Div**: 194,557.80 **Total Dynamic Systems & Control Div**: 194,557.80 **Total Dynamic Systems & Control Div**: 194,557.80 **Total Dynamic Systems & Control Div**: 194,557.80 **Total Dynamic Systems & Control Div**: 194,557.80
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- **Dynamic Systems and Control (DSC) insert for Mechanical Engineering magazine.** There will be four issues, and each issue is budgeted at $15,000 (hard copies to DSCD members only).

- **Volunteer travel.** DSCD ExComm members travel to ACC, DSCC, and other events for DSCD-related businesses. Member of ASME DSCD travels to IEEE/ASME Transactions on Mechatronics (TMECH) Management Committee meetings.

- **Awards and honor activities.** These include ASME society award (Rufus T. Oldenburger Medal), Division awards (Rudolf Kalman Best Paper Award; Nyquist Lecture; Yasundo Takahashi Education Award), DSCD officer gifts, and Best Paper Awards selected by DSCD Technical Committees.

- **External Web Tool.** DSCD will continue to use the external web services for FY 17.

**SPENDING BUDGET**

- A/V and F/B cost at DSCC conference: $5,000.
- Student travel support: $6,000
- DSC insert for Mechanical Engineering magazine: $60,000.
- Volunteer travel: $8,000.
- Awards and honor activities: $8,000.
- External web tool: $620.

***Total: $87,620***

[Spending limit: $116,986.79]
American Society for Mechanical Engineers

October 2017 Status Report

Journal of Dynamic Systems, Measurement and Control

Technical Editor: Dr. Joseph Beaman
### Papers Published in JDSMC 2009-2017

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*Total represents all journal issues in the Digital Collection at the time of the report (October 6, 2017). The above chart shows the distribution of Research Papers, Technical Briefs and total pages dedicated to the journal by year since 2009 and is further broken down by individual issue. There has been a steady rise in both the number of papers and the number of pages over the years. There has been an increase in the number of submissions and papers published, averaging approximately 150 pages per issue on a monthly basis in 2017.
This graph tracks the number of Research Papers, Technical Briefs and total papers published since 2009. The data is gathered from the ASME Digital Collection. The journal’s growth led to a backlog of papers ready for production when it was still a bi-monthly publication schedule which is why the 2015 numbers are skewed so high. We anticipate a high rate of submissions continuing in 2017 and will focus on continuing the streamlining of the review process and publishing higher quality papers.

The preceding graph shows the total pages published for all journal issues in a given year. 2015 published nearly 600 additional pages over 2014 and broke 2000 pages for the first time in journal history due to a backlog of papers ready for production.
Journal Review Statistics

The JournalTool tracks statistics based on the year of submission for a paper, not the year of publication. Thus all stats represent totals for papers submitted in a given year irrespective of the publication year. All statistics for 2016 are accurate as of October 6, 2017. Numbers for previous years have been revised as the papers submitted in those years continue to move through the review process.

Paper Review Stats by Year of Submission 2003-2016

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*Stats as of 10/6/17

Paper submissions have steadily risen the last six years. 2016 continues the trend begun in 2015 with over 600 submissions for the year thus far. The percentage of papers rejected is in line with historical norms. The percentage of papers accepted has steadily declined since a high of 34% in 2010 even while the journal continues to produce at a high rate.
This graph shows the yearly increase in paper submissions to the journal. The journal’s growth rose to a record high in 2015. Submissions to the journal topped 600 again in 2016, reaching a total number of 619 papers.

This graph shows the number of papers submitted by year and the distribution of their fate. Previous years have been updated.
This graph plots the percentage of papers submitted in a year that are either rejected or accepted for publication. The 2016 are holding steady with norms set in the previous 3 years.

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<td>2017 YTD</td>
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<td>66</td>
<td>12</td>
<td>9</td>
<td>12</td>
<td>3.236</td>
<td>7.257</td>
</tr>
</tbody>
</table>

The preceding statistics for review times are tracked by the year a paper is submitted. The journal has steadily decreased the amount of time papers spend in review and/or production. 2017 numbers are skewed due to the large amount of papers that are in the review process.
These graphs plot the time various aspects of the review process take. The time in review still remains the largest portion of this process while overall, all aspects seem to be holding steady. 2017 numbers are skewed due to the number of papers still in the review process.
This graph shows the total average time it takes a paper to go from submission to publication. It is further broken down between the total time under review and the total time in production. While the production side has historically been the larger component, the entire process has gradually become more streamlined.
<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
<th>Term End Date</th>
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</thead>
<tbody>
<tr>
<td>Ashrafiuon, Hashem</td>
<td>Villanova University</td>
<td>15-Dec-18</td>
</tr>
<tr>
<td>Ayalew, Beshah</td>
<td>Clemson University</td>
<td>15-Jan-18</td>
</tr>
<tr>
<td>Bristow, Douglas</td>
<td>Missouri University of Science and Technology</td>
<td>26-Jan-18</td>
</tr>
<tr>
<td>Cao, Dongpu</td>
<td>Cranfield University</td>
<td>01-Jun-19</td>
</tr>
<tr>
<td>Caruntu, Dimitru</td>
<td>University of Texas Rio Grande Valley</td>
<td>01-Jan-18</td>
</tr>
<tr>
<td>Chakravorty, Suman</td>
<td>Texas A&amp;M University</td>
<td>01-Feb-18</td>
</tr>
<tr>
<td>Choi, Jongeun</td>
<td>Yonsei University</td>
<td>15-Dec-18</td>
</tr>
<tr>
<td>Eskandarian, Azim</td>
<td>Virginia Tech University</td>
<td>01-Mar-18</td>
</tr>
<tr>
<td>Fang, Yongchun</td>
<td>Nankai University</td>
<td>01-May-19</td>
</tr>
<tr>
<td>Farhood, Mazen</td>
<td>Virginia Tech University</td>
<td>01-Sep-18</td>
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<tr>
<td>Fite, Kevin</td>
<td>Clarkson University</td>
<td>01-Feb-18</td>
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<tr>
<td>Handroos, Heikki</td>
<td>LUT</td>
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<tr>
<td>Hsiao, Tesheng</td>
<td>National Chiao Tung University</td>
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<tr>
<td>Jeon, Soo</td>
<td>University of Waterloo</td>
<td>01-Sep-18</td>
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<tr>
<td>Kumar, Manish</td>
<td>University of Cincinnati</td>
<td>01-Dec-17</td>
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<td>01-Sep-17</td>
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<tr>
<td>Milutinovic, Dejan</td>
<td>UC Santa Cruz</td>
<td>15-Feb-18</td>
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<tr>
<td>Nagamune, Ryozo</td>
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<td>Nersesov, Sergey</td>
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<td>Papadopoulos, Evangelos</td>
<td>NTUA</td>
<td>01-Dec-17</td>
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<tr>
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<td>NY University Polytechnic School</td>
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<tr>
<td>Salapaka, Srinivasa M.</td>
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<td>01-Aug-18</td>
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<td>Shahbakhti, Mahdi</td>
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<td>15-Aug-20</td>
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<td>University at Buffalo</td>
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<td>Wang, Junmin</td>
<td>Ohio State University</td>
<td>15-Dec-19</td>
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<td>Xin, Ming</td>
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<td>Xu, Yunjun</td>
<td>University of Central Florida</td>
<td>15-May-19</td>
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<tr>
<td>Yi, Jingang</td>
<td>Rutgers University</td>
<td>01-Jun-17</td>
</tr>
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</table>
# Total Number of Active Editors 2003-2017

<table>
<thead>
<tr>
<th>Year</th>
<th>Guest Editor</th>
<th>Associate Editor</th>
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<tbody>
<tr>
<td>2003</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>2004</td>
<td>0</td>
<td>21</td>
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<td>27</td>
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<td>2014</td>
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<tr>
<td>2017</td>
<td>3</td>
<td>32</td>
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</table>

The total number of Associate Editors includes those whose term has been extended into next year but does not include those whose term has already ended this year.

## Associate Editor Paper Load

<table>
<thead>
<tr>
<th>Year</th>
<th>Papers</th>
<th>AEs</th>
<th>Paper Load</th>
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<tbody>
<tr>
<td>2003</td>
<td>399</td>
<td>19</td>
<td>21.00/yr</td>
</tr>
<tr>
<td>2004</td>
<td>339</td>
<td>21</td>
<td>16.14/yr</td>
</tr>
<tr>
<td>2005</td>
<td>373</td>
<td>18</td>
<td>20.72/yr</td>
</tr>
<tr>
<td>2006</td>
<td>393</td>
<td>22</td>
<td>17.86/yr</td>
</tr>
<tr>
<td>2007</td>
<td>336</td>
<td>24</td>
<td>14.00/yr</td>
</tr>
<tr>
<td>2008</td>
<td>389</td>
<td>27</td>
<td>16.21/yr</td>
</tr>
<tr>
<td>2009</td>
<td>374</td>
<td>34</td>
<td>11.00/yr</td>
</tr>
<tr>
<td>2010</td>
<td>384</td>
<td>29</td>
<td>13.24/yr</td>
</tr>
<tr>
<td>2011</td>
<td>413</td>
<td>27</td>
<td>15.30/yr</td>
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<tr>
<td>2012</td>
<td>438</td>
<td>29</td>
<td>15.10/yr</td>
</tr>
<tr>
<td>2013</td>
<td>537</td>
<td>29</td>
<td>18.52/yr</td>
</tr>
<tr>
<td>2014</td>
<td>554</td>
<td>25</td>
<td>22.16/yr</td>
</tr>
<tr>
<td>2015</td>
<td>662</td>
<td>35</td>
<td>18.91/yr</td>
</tr>
<tr>
<td>2016</td>
<td>619</td>
<td>32</td>
<td>19.34/yr</td>
</tr>
<tr>
<td>2017</td>
<td>615</td>
<td>32</td>
<td>19.22/yr</td>
</tr>
</tbody>
</table>

This chart shows the number of papers submitted in a year, the number of Associate Editors that year, and the average number of papers that each AE could expect to review. There had been a steady increase of the number of papers each AE could expect to review on average that hit its highest point in 2014. We have focused attention on increasing the number of AEs in order to reduce the individual workload in an effort to speed up the review process.
Executive Summary:

- 2016 Impact Factor: 4.357 increase from 3.851 in 2015
- On pace for 1400+ submissions in 2017
- No backlog but EiC operation becomes bottleneck
- Investigate and update editorial structure: EiC + Senior Editor + TE
- IEEE RAS provide EiC Elect candidates by June 2018

2017 Management Committee

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Xinghuo Yu (IES)</td>
<td>Dong-Soo Kwon (RAS)</td>
<td>Kok-Meng Lee (DSCD)</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Dong-Soo Kwon (RAS)</td>
<td>Santosh Devasia (DSCD)</td>
<td>Makoto Iwasaki (IES)</td>
</tr>
<tr>
<td>Secretary</td>
<td>Santosh Devasia (DSCD)</td>
<td>Makoto Iwasaki (IES)</td>
<td>Aaron Dollar (RAS)</td>
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<tr>
<td>Members</td>
<td>Makoto Iwasaki (IES)</td>
<td>Roberto Oboe (IES)</td>
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<tr>
<td>Bram Vanderborght (RAS)</td>
<td>Aaron Dollar (RAS)</td>
<td>Kyujin Cho (RAS)</td>
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<td>Kok-Meng Lee (DSCD)</td>
<td>Kok-Meng Lee (DSCD)</td>
<td>Santosh Devasia (DSCD)</td>
<td></td>
</tr>
</tbody>
</table>

Officers of the Management Committee rotate among the sponsoring societies.

2017 Editorial Staff

- Editor-in-Chief: George Chiu, Purdue University (2017-19)
- Editorial Office: Ms. Kimberly Stockment, Purdue University
- Technical Editors: 50
  - 3 year term with 1st 12 months as trial, extend for another 12 months (4 years total)
Publication Status

2017 (Vol 22)

• **February issue** – 588 pages, 55 articles
  - Focused Section – Modeling and Control of Soft Manipulators
  - Regular papers – 48 articles
• **April issue** – 536 pages, 48 articles
  - Focused Section – Design and Control of Hydraulic Robots
  - Regular papers – 40 articles
• **June issue** – 368 pages, 35 articles
  - Focused Section – Advanced Control and Navigation for Marine Mechatronic Systems
  - Regular papers – 27 articles
• **August issue** – 436 pages, 42 articles
• **October issue** – 476 pages, 46 articles

5 Focused Sections extended from 2016, scheduled to publish 5
2017 page budget: 3000, pages used (5 issues): 2396

Page Budget and Backlog

Page budget growth:

<table>
<thead>
<tr>
<th>Year</th>
<th>'04</th>
<th>'05</th>
<th>'06</th>
<th>'07</th>
<th>'08</th>
<th>'09</th>
<th>'10</th>
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<th>'13</th>
<th>'14</th>
<th>'15</th>
<th>'16</th>
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</thead>
<tbody>
<tr>
<td>Pages</td>
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<td>710</td>
<td>750</td>
<td>752</td>
<td>750</td>
<td>794</td>
<td>1028</td>
<td>1224</td>
<td>1232</td>
<td>1832</td>
<td>2000</td>
<td>3292</td>
<td>3000</td>
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<td>6</td>
<td>6</td>
<td>6</td>
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<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

• **Recommend maintain current 3000 page annual budget and gradually adjust based on submission number**

Backlog (**no more**)  
• **97** articles in Early Access
• **46** articles will be published in October 2017 issue
• **50** articles are waiting to be assigned (< 2-3 months)
  - Essentially no more backlog (**Thanks to Dr. Kaynak!**)
Submission Status

Including new and revised submissions

- On target to reach 1400+ submissions in 2017
- Publish about 270 articles/year

At-a-Glance Update

<table>
<thead>
<tr>
<th>Submission Statistics</th>
<th>YTD</th>
<th>MTD</th>
<th>Prior 12 Months</th>
<th>Monthly Avg Prior 12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focused Section Short</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0.2</td>
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<tr>
<td>Short paper</td>
<td>31</td>
<td>0</td>
<td>37</td>
<td>3.1</td>
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<tr>
<td>Regular paper</td>
<td>783</td>
<td>28</td>
<td>991</td>
<td>82.6</td>
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<tr>
<td>Focused Section Short Paper</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.1</td>
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<tr>
<td>Letter</td>
<td>9</td>
<td>0</td>
<td>10</td>
<td>0.8</td>
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<tr>
<td>Focused Section</td>
<td>38</td>
<td>1</td>
<td>59</td>
<td>4.9</td>
</tr>
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</table>

<table>
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<th>Journal Statistics</th>
<th>MTD</th>
<th>Prior 12 Months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. days from submission to first decision</td>
<td>0.0</td>
<td>84.1</td>
</tr>
<tr>
<td>Avg. Reviewer turnaround time (days) - Original</td>
<td>2.0</td>
<td>28.2</td>
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<tr>
<td>Avg. Reviewer turnaround time (days) - Resubmission</td>
<td>0.0</td>
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<tr>
<td>Avg. Reviewer turnaround time (days) - Revision</td>
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<tr>
<td>Avg. Time to Assign Reviewer (days) - Original</td>
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<td>Avg. Time to Assign Reviewer (days) - Resubmission</td>
<td>0.0</td>
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<tr>
<td>Avg. Time to Assign Reviewer (days) - Revision</td>
<td>4.0</td>
<td>7.9</td>
</tr>
<tr>
<td>Avg. days from submission to final decision</td>
<td>0.0</td>
<td>94.4</td>
</tr>
</tbody>
</table>

Other Statistics

Accept Ratio (prior 12 months) | 203 / 732 (27.7%)
Impact Factor and Ranking

New data for 2016

<table>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank in Engineering, Manufacturing</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<tr>
<td>Rank in Automation and Control Systems</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>60</td>
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<td>Rank in Engineering, Mechanical</td>
<td>6</td>
<td>3</td>
<td>5</td>
<td>3</td>
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<tr>
<td>Rank in Engineering, Electrical &amp; Electronics</td>
<td>18</td>
<td>17</td>
<td>12</td>
<td>25</td>
<td>260</td>
</tr>
</tbody>
</table>

Excellent result! Credit to Dr. Okyay Kaynak!

2017 TMECH Best Paper Award

A Time-Domain Approach to Control of Series Elastic Actuators: Adaptive Torque and Passivity-Based Impedance Control

Dylan P. Losey; Andrew Erwin; Craig G. McDonald; Fabrizio Sergi; Marcia K. O’Malley

Volume: 21, Issue: 4, pp: 2085-2096
DOI: 10.1109/TMECH.2016.2557727
2018 ASME Dynamic Systems and Control Conference (DSCC)

October 1-3, 2018
Atlanta, Georgia
Budget

- Projected 2017 ACC return ($30K) counts as part of 2018 DSCC income
- Registration fee: $600 (Advanced, Member)
- Budgeted $15,000 for student travel support
- Including 3 breakfasts, opening reception, banquet, farewell lunch
**Venue**

Hotel: Hyatt Regency, Atlanta

- Guest room rate $179
- Convenient downtown location, 12 miles from the airport, connected directly to MARTA
- Blocks away from Georgia Aquarium, the World of Coco-Cola and other attractions; 1.5 miles from Georgia Tech
Organizing Committee

General Chair
Xiaobo Tan

Program Chair
George Zhu

Exhibits Chair
Kam Leang

Local Arrangements Chair, Jun Ueda

Invited Sessions Chair, Juan Ren

Workshops Chair
Sean Andersson

Students Chair
Vaibhav Srivastava

Publications Chair
Doug Bristow

Publicity Chair
Yue Wang

CEB Chair
Fen Wu

ASME Program Manager
Erin Dolan
Programs

- Four plenary talks
- Invited, special, and regular sessions
- Workshops and tutorials
- Student programs (Best Student Paper Award, networking events)
- Industry exhibits

Important dates
- Submission of invited session proposals - **April 2, 2018**
- Submission of contributed and invited papers - **April 9, 2018**
- Notification of acceptance/rejection - **May 28, 2018**
- Submission of final papers - **July 9, 2018**
Conference Organizers

General Chair
XIAOBO TAN, xbtan@bren.msu.edu
Michigan State University

Program Chair
GEORGE ZHU, zhu@egr.msu.edu
Michigan State University

Exhibits and Industrial Liaison Chair
KAM K. LEANG, kam.k.leang@utah.edu
University of Utah

Local Arrangements Chair
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Georgia Tech

Invited and Special Session Chair
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Iowa State University

Workshops and Tutorials Chair
SEAN ANDERSSON, sean לסס@bu.edu
Boston University

Students and Young Members Chair
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North Carolina State University

ASME Program Manager
ERIN DOLAN, dolan@asme.org
ASME

Conference ToolBox Coordinator
toolboxhelp@asme.org

The 2018 Dynamic Systems and Control Conference (DSCC) will be held on October 1-3, 2018, at the Hyatt Regency Atlanta, located in the heart of downtown Atlanta, Georgia. The venue is one of the top Atlanta luxury hotels and is connected to the MARTA transit system and blocks away from major attractions such as the Georgia Aquarium and the World of Coca-Cola. On behalf of the DSCC organization committee and the Dynamic Systems and Control Division (DSCD) of ASME, we cordially invite you to enjoy an exciting technical program and a unique opportunity to network.

The DSCC conference is the showcase technical forum of the ASME Dynamic Systems and Control Division. It provides a focused and intimate setting for dissemination and discussion of the state of the art in dynamic systems and control research, with a mechanical engineering focus. The 2018 DSCC Technical Program will consist of sessions in all of the usual areas of interest to the Division that include, but are not limited to, automotive and transportation systems, bio-systems and health care, energy systems, mechatronics, modeling, identification, intelligent systems, robotics, vibrations, and smart structures. Highlights of the 2018 DSCC will include:

- Four plenary talks given by distinguished scholars, including the Goldburger Lecture and the Nyquist Lecture.
- Workshops and tutorials that are focused on emerging topics.
- Invited and special sessions on technical tracks and funding programs that are of interest to the DSC community.
- Student programs including Best Student Paper competition, networking with faculty recruiters, and networking with industry.
- Exhibits by industry.
- Extensive networking opportunities during the opening reception, continental breakfasts, the banquet, and the farewell lunch.

All accepted papers must be presented on-site at the conference by an author of the paper. Papers which are not presented (no-shows) will be removed from the official conference proceedings and will not be indexed through the ASME Digital Collection.

Online access to conference papers will be given to all registered attendees at the start of the conference. Following the event, the official proceedings of the conference are published in the ASME Digital Collection, and will be submitted to all major indexers including EI, Scopus, and the ISI Conference Proceedings Citation Index.

Important Dates

- Submission of invited session proposals - April 2, 2018
- Submission of contributed and invited papers - April 5, 2018
- Notification of acceptance/rejection - May 28, 2018
- Submission of final papers - July 9, 2018
At a Glance

- June 27–29, 2018 (WThF)
- Technical Sessions at Wisconsin Center
- Room Block, Meetings, Events at Hilton
- Short Skyway Connects Hilton and WC
- $440/$550/$220 Advance Registration
- $520/$650/$260 On-Site Registration
- Room Rate $184/$165/$92 (A/S/V)
- Summerfest Music Festival (6/27–8/8)
Downtown Milwaukee

Wisconsin Center

Milwaukee Art Museum

Milwaukee Hilton Downtown (skyway)
Plenary Speakers

- **Rob Wood**
  - Innovative roboticist
  - NSF Waterman award winner

- **Alejandro M. “Miguel” San Martin**
  - Chief Engineer, JPL G&C Section
  - Co-Architect of the Mars Skycrane

- **Emery Brown**
  - Anesthesiologist/Statistician
  - Dynamics of unconsciousness

- **Ketan Savla**
  - 2017 Donald P. Eckman award winner
  - Robust and optimal control for civil infrastructure
Travel Mug

16oz. CONTIGO WEST LOOP

Bottle Color: MATTE BLACK
Quantity: per P.O.
Committee

- Program: Zongli Lin
- Finance: Jingang Yi
- Publications: R. Scott Erwin
- Publicity: Atul Kelkar
- Workshops: Sahika Genc
- VC Special Sessions: Nejat Olgac
- VC Student Affairs: Alex Leonessa
- Local Arrangements: Donald Chmielewski
- Registration: Xiang Chen
- VC Invited Sessions: Juergen Hahn
- VC Industry & Applications: Ken Butts
- Exhibits: Shreyas Sundaram
Join Us in Milwaukee!

9-12 July 2018, Auckland, New Zealand

Profs Shane Xie and Kean Aw
Department of Mechanical Engineering,
The University of Auckland
Auckland, New Zealand
Quality of Life Index, 2010
-- “International Living Magazine”

Top 10 countries

1. France
2. Australia
3. Switzerland
4. Germany
5. New Zealand
6. Luxembourg
7. United States
8. Belgium
9. Canada
10. Italy

Nine categories considered: Cost of Living, Culture and Leisure, Economy, Environment, Freedom, Health, Infrastructure, Safety and Risk, and Climate
Auckland City - Where it’s Happening

- City on the campus doorstep
  - theatres
  - cafes
  - shops
  - international sporting venues
  - cultural diversity

- Sensational backdrop
  - outdoor recreation and adventure
  - beaches
  - unspoiled countryside
  - adventure activities
The University of Auckland
New Zealand's top ranked university
Industry activities and tours
Accommodations

Auckland City Hotel - Hobson St

Value Deal 517
Auckland Central Business District, Auckland
There are 2 people looking at this apartment.
Last booked: 24 minutes ago
Double Room - 28 m²
5 more room types

We have 3 rooms left!
NZD 149 NZD 135
Book now
To and from Auckland Airport

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Evening departures every 20 minutes and overnight every 30 minutes.
Tickets are available online, from the bus driver (cash only), selected city hostels, hotels and Auckland i-Sites or the ticket machine at the Airport Ticket Kiosks (located by the Airbus Express bus stops).

Prices start from $16 one way for an adult.

Taxi and shuttle ranks are located outside the arrivals area (door 8) at the international terminal and outside the Jetstar forecourt at the domestic terminal. You can pre-book with one of the companies listed below or just turn up at the terminal ranks – taxis and shuttles are always available.

Indicative fares from the airport into the city is between NZ$75 – NZ$90 one-way for a taxi and shuttles($33 for one person plus $8 for each extra person together in the same group). For specific fare pricing, contact the taxi and shuttle companies directly.

Parking

Public transport

Rental Vehicles
Hoping to see you in Auckland in 2018
2018 ASME/IFAC International Symposium on Flexible Automation

ISFA2018 in Kanazawa

To be held

July 16-18, 2018

in Kanazawa, Ishikawa, Japan

Conference Chair:

Eiji Arai, Osaka University, Japan

Conference Co-Chair:

Professor Jian Cao, Northwestern University, USA
Kanazawa is traditional and beautiful city in Japan.

Kanazawa Castle  Kenroku-en  Higashi Chaya Teahouse District

Conference Center of the Kanazawa Chamber of Commerce and Industry
Conference Theme: Smart and Connected

3D Design and Modeling
Additive Manufacturing
Artificial Intelligence
Big Data Analysis
Cloud Computing/Manufacturing
Cyber-Physical Systems/Security
Human Robot Collaboration
Internet of Things
Lean Manufacturing
Mechatronics
Unmanned Vehicle Control

Both Long Papers (up to 8 pages) and Short Papers (up to 4 pages) may be submitted
The official website:

http://w3a.kanazawa-it.ac.jp/ISFA2018/

Important dates:

• Submission of manuscript for review: **December 15, 2017**, via the conference website.

• Submission of final, revised manuscript: **April 27, 2018**.

• Submission of copyright transfer form and registration of the presenting author: **May 25, 2018**.
Conference Schedule:

• **July 15\(^{th}\), 2018**: Welcome Reception at 21\(^{st}\) Century Museum of Contemporary Art

• **July 16\(^{th}\)–18\(^{th}\), 2018**: Technical Sessions

• **July 15\(^{th}\), 2018**: Conference Banquet at Kanazawa Tokyu Hotel

• **July 19\(^{th}\), 2018**: Technical Tours and Excursions
Access by Plane

Komatsu Airport

Seoul

Shanghai

Fukuoka

Taipei

Narita International Airport

Naha

Tokyo International (Haneda) Airport Flight: 1h15m
Kanazawa
Tokyo
Osaka
Kobe
Kyoto
Nagoya
Toyama
Fukui
Komatsu
KOMATSU (Construction Machinery)

Modern Industries

Train: 2h30m

KOMATSU (Construction Machinery)
NACHI-FUJI KOSHI (Bearing)
KITAMURA MACHINERY (Machine Tools)
KOMATSU NTC (Machine Tools)
SUGINO Machine (Machine Tools)
YKK (Fastening Products)

TSUDAKOMA (Textile Machinery, World Top 1)
SHIBUYA (Bottling System, World Top 1)
NAKAMURA-TOME (Multitasking Machine)
TAKANISHI (CNC Lathe)
ISHINO (Kaiten Sushi Conveyer)

MATSUURA MACHINERY (Machine Tools)
SODIC (Machine Tools)
We look forward to welcoming you in 2018 at Kanazawa, Japan!
In 2017 the DSCD Newsletter continues to support publicizing DSCD community news such as calls for papers/proposals, conference information, educational and research activities, and job postings. The summer issue was distributed electronically to the DSCD mailing list on August 16. The issue contained two features that pay tribute to the lives of two longterm community members: J. Karl Hedrick (1944-2017) and John J. Moskwa (1950-2017). Guest Editors Peter Seiler Jr and Mahdi Shahbakhti joined us in editing these two features. The issue also contained several conference reminders, award announcements, and a profile article of the 2016-2017 awardees of the NSF CAREER award from the Dynamics, Control and Systems Diagnostics (DCSD) Program in the Division of Civil, Mechanical and Manufacturing Innovation (CMMI).

Moving forward, we will continue with the same focus in future issues. The winter issue is planned to be distributed in December 2017. The call for contributions will be sent out after the DSCC conference.

Editor, Xu Chen, University of Connecticut
Associate Editor, Jianguo Zhao, Colorado State University
Editor’s Note

Dear colleagues,

This issue of ASME DSCD Newsletter contains the feature “In Memory of Professor Karl Hedrick” by the controls faculty from the Department of Mechanical Engineering, UC Berkeley, Andrew Alleyne, Joseph Beaman, Dong-il (Dan) Cho, Eduardo Misawa, Rajesh Rajaman, and A.Galip Ulsoy. The feature pays tribute to the life of Professor J. Karl Hedrick (1944-2017), a longtime community member, mentor, and advocate of control engineering. We hope you will be as inspired by his story as we are.

A second feature of this newsletter is “John J. Moskwa (1950 – 2017): Musician, Mechanic, and Engineer” by Eduardo Misawa. Professor Moskwa passed away on June 3 after battling pancreatic and liver cancer. We are sharing to you John’s 2015 Newsletter article “Single-Cylinder Engine (SCE) Transient Test System” as a tribute to his individuality and passion for powertrain controls.

In the article “Young Investigators in Dynamic Systems and Controls,” we speak with six 2016 awardees of the NSF CAREER award from the Dynamics, Control and Systems Diagnostics (DCSD) Program in the Division of Civil, Mechanical and Manufacturing Innovation (CMMI). In the dialogues, the young investigators shared their engagements with research and education.

We appreciate the great efforts of guest editors Dr. Peter Seiler Jr and Dr. Mahdi Shahbakti, whose editing and outreach made the first feature possible in its current form. Future newsletters will continue to support special issues, in addition to community news such as call for papers/proposals, conference information, educational activities, introduction of experimental platforms, and job postings. We enthusiastically look forward to your future contributions.

Editor: Xu Chen, University of Connecticut
Associate Editor: Jianguo Zhao, Colorado State University
Guest Editors: Peter Seiler Jr, University of Minnesota, Mahdi Shahbakti, Michigan Tech. University
Professor Hedrick, 1944-2017

J. Karl Hedrick was best known for the development of nonlinear control theory and its applications to transportation, including automated highway systems, powertrain controls, embedded software design, formation flight of autonomous vehicles, and active suspension systems. Hedrick also made important contributions to nonlinear estimation and control.

Hedrick received his bachelor’s degree in engineering mechanics at the University of Michigan in 1966. He earned his master’s and his doctoral degrees in aeronautical and astronomical engineering at Stanford University in 1970 and 1971, respectively.

From 1974 to 1988, Hedrick was a professor of mechanical engineering at the Massachusetts Institute of Technology, where he directed the Vehicle Dynamics Laboratory. He then joined the Department of Mechanical Engineering at the University of California, Berkeley in 1988, where he taught graduate and undergraduate courses in automatic control theory.

While at Berkeley, Hedrick served as the chair of the Department of Mechanical Engineering (1999–2004), the James Marshall Wells Academic Chair (since 1997), and as director of the university's Partners for Advanced Transit and Highways Research Center (1997–2003), which conducts research in advanced vehicle control systems, advanced traffic management and information systems, and technology leading to an automated highway system. He was also the director of Berkeley’s Vehicle Dynamics Laboratory, as well as a codirector of the Hyundai Center of Excellence in Active Safety and Autonomous Systems.

Hedrick was a member of the National Academy of Engineering, the Society of Automotive Engineers, and the American Institute of Aeronautics and Astronautics. He was also a fellow of the American Society of Mechanical Engineers (ASME), and past chair of the Dynamic Systems and Control Division and its Honors Committee.

Other honors include the Outstanding Paper Award from the Institute of Electrical and Electronics Engineers, 1998; the American Automatic Control Council’s O. Hugo Schuck Best Paper Award, 2003; the ASME Division of Dynamic Systems, Measurement, and Control’s Outstanding Investigator Award, 2002; and the ASME Journal of Dynamic Systems, Measurement, and Control Best Paper award in 1983 and 2001. Hedrick received ASME’s 2006 Rufus Oldenburger Medal, which recognizes significant contributions and outstanding achievements in the field of automatic control. He delivered the ASME Nyquist Lecture in 2009.

He has written two books and published more than 140 peer-reviewed archival publications. Spanning his career at Arizona State, MIT and Berkeley, Hedrick has graduated over 70 Ph.D. students.

Celebration of the Life of J. Karl Hedrick

Francesco Borrelli, UC Berkeley

On May 6th 2017, the UC Berkeley Mechanical Engineering department and the College of Engineering organized a memorial service for Professor J. Karl Hedrick. It was an event to celebrate Karl’s professional and private life. It was a very beautiful and touching ceremony with hundreds of participants. I had the honor to start the event and introduce the speakers. I am copying below some excerpts from my speech.

Good afternoon everybody. On behalf of the mechanical engineering department, the college of engineering and UC Berkeley, welcome and thank you so much for being here today. Your presence here means a lot to all of us.

Many of you have traveled from very far, canceling important work and family commitments, to be here. We want you to know that we really appreciate your effort.

Two months ago on Feb 22nd, Professor Karl Hedrick passed away. A year before that he was diagnosed with lung cancer. We knew this moment would be coming. However, we all thought we had more time with him. For all of us it was just too quick, unexpected.

Today we are here to remember him, to share our memories with his friends and colleagues and especially with his family.

Colleagues, friends, and collaborators from Berkeley, his former students, industrial and academic collaborators will soon come to the podium and share some thoughts and memories of Karl.

I think it is a very important moment for all of us, especially in our super busy, hyper connected lives. So please turn off your phone and use this time to listen and remember.

I will start with telling you about Karl first, his main accomplishment and my memories.

Professor Hedrick received his bachelor’s degree in engineering mechanics at the University of Michigan in 1966. He earned his master’s and his doctoral degrees in aeronautical and astronomical engineering at Stanford University. He started his academic career as an assistant professor at the Aerospace Engineering Department of Arizona State University. From 1974 to 1988, Hedrick was a professor of mechanical engineering at the Massachusetts Institute of Technology, where he directed the Vehicle Dynamics Laboratory. He then joined the Department of Mechanical Engineering at the University of California, Berkeley in 1988.
I still remember him telling me his story of Tomi calling him from Berkeley and asking him if he had any good students... and him replying... “what about me”? He had enough of the cold weather of Boston and was ready for a better place.

Over the years he became one world expert of nonlinear control theory and its applications to transportation, including automated highway systems, powertrain controls, formation flight, autonomous vehicles, and vehicle dynamics.

While at Berkeley, Hedrick served as the chair of the Department of Mechanical Engineering (1999–2004), Director of a center called PATH (Partners for Advanced Transit and Highways Research Center) (1997–2003). Probably his most know work at PATH was the autonomous platoon study, which culminated in the famous highway demonstration in 1997—a team effort which involves Professor Tomizuka, Professor Varaya, and a number of PATH researchers including Dr. Wei Bin, Professor Rajamai, and Dr. Shaldover.

Professor Hedrick’s list of honors and award is incredibility long. Hedrick was a member of the National Academy of Engineering, the Society of Automotive Engineers, and the American Institute of Aeronautics and Astronautics. He was also a fellow of the American Society of Mechanical Engineers (ASME), and past chair of the Dynamic Systems and Control Division and its Honors Committee. He won all best paper awards and the Rufus Oldenburger Medal, which recognizes significant contributions and outstanding achievements in the field of automatic control.

Spanning his career at Arizona State, MIT and Berkeley, Hedrick has graduated over 70 Ph.D. students. All of them very successful in industry and academia, and many of them are here today with us.

My name is Francesco Borrelli. I am a professor in the Mechanical Engineering Department. I met Karl roughly 10 year ago, when I joined Berkeley as an assistant professor. And yes, first it is true he was super smart and knowledgeable. But in addition, what really struck me was how human and kind he was. He was a real gentleman... and it was so natural for him.

Karl was always cheerful, encouraging, caring, and as for many in this room he strongly impacted my life. Professionally he gave me the opportunity to work with a number of company on very interesting projects. But most of all he taught (or at least tried to teach) me how to cope with stress, be calmer and still get lots of things done.

He was my low pass filter and it was very difficult to make him angry. I still remember his face, after we returned from a trip to Korea which lasted less than 24 hours (which was my idea). Ohhh we were so tired. He looked at me angry “I should have never listened to you” he said. Then he paused, smiled and said “Francesco!”.

Our first research proposal was ten year ago. Our last one was approved a few weeks ago. We have lost only a few of them. Six years ago we wrote a really successful one and built what is known as the Hyundai Center of Excellence at UC Berkeley on active safety systems. Karl has probably collaborated with all automotive companies during his career. However, the experience over the past six years has been unique. We have been fortunate enough to attract the interest of the Hyundai Automotive Company’s top management and build what it is probably the biggest collaboration between an automotive company and a university in the USA. A collaboration, which encompasses fundamental research, experimentation and training, the Hyundai Center of Excellence really strengthen my collaboration with Karl. We were doing research, traveling, and preparing courses together. I have beautiful memories of our trip to Korea where he was always welcomed as a king.

I do not know if you know this, but six of Karl’s formal students are now professors in top Korean universities.

Outside work, first and foremost his family. He has a beautiful family and in the past years he has been very excited about the weddings and grandchildren. After family, there was tennis. You probably know that he played against top raked players but you might not know that he chaired a committee in the International Tennis Federation whose task was to regulate technologies (like sensors and data acquisition) in tennis racquets. Today’s regulations have been strongly influenced by Karl. After tennis, long bike rides with his wife and family in Europe and after that ….. white wine.
It has been an honor for me and I consider myself very fortunate to have shared part of my life with him. I miss him very much.

J. Karl Hedrick: The Teacher who became a Friend

Andrew Alleyne, University of Illinois, Urbana-Champaign

It is bittersweet that I am here today gathered with family, friends, and colleagues. On the one hand, I am happy to celebrate Karl's life. On the other hand, my heart is still heavy that we did not have more time with him.

Many things can be said about Karl. That he was a wonderful scholar, that he was an adept administrator, that he was an even keeled leader. These are all true but they won’t be what I return to when thoughts of Karl enter my mind. I will always remember him as the teacher who became a friend.

Karl was a teacher; a teacher of life. Not so much by what he wrote on a blackboard or sent in an email. He taught me by example. As I watched him for 25 years, there are several key takeaways that shaped how I approached my own life. Here are some of the best lessons I learned.

First, life is short. Have fun doing what you’re doing. Karl had a great way of maintaining a certain levity and sense of humor even when dealing with detailed technical material. It was subtle but the longer one observed him, the more one could see that there was a balance there. The first time I realized our paths would be intertwined was when he made a subtly ribald joke during a class my first semester in graduate school. Few, if any others, in the class got it; they were too busy writing down notes. However, I realized that this is someone that I could work with. Someone who can work hard but still enjoy themselves along the way. That outlook has stayed with me to this day.

A corollary to this lesson is that there are few problems in life that don’t look smaller over a good glass of Chardonnay.

Second, get your priorities in order and keep the family first. When I first met him, he made sure that he went home at 4:30 or 5 pm to coach his kids in sports. He was rarely, if ever, in the office on weekends. He demonstrated that one can be involved with life at home and still excel at work. I can’t tell you how much I respected that. I’ve been trying to live that lesson for the past 20 years; probably not as well as Karl.

Third, take care of people...or at the least, don’t be a jerk. Many would say Karl was a great man; I can say Karl was truly a “good guy.” The kind of guy you would like to keep company with. Rarely would he speak ill of others and I cannot remember anyone speaking ill of him. Last year we had a life celebration and dozens of his former students came from far and wide to let him know how much he meant to them. This was a clear testament to his treatment of the people he worked with.

There are other life lessons I’ve learned but I wish to talk about Karl the friend. Not everyone gets to call their advisor a friend. Over the past 15 years, as my own career has grown, I’d found myself spending time with Karl at meetings and conferences and sharing many things from our lives that had little to do with the subject matter of the meetings: family, health, finance.....keeping strange boys away from your daughters. We made a point of finding time for just the two of us a couple of times per year. I will treasure those dinners and late night chats around some bar.

Winston Churchill once said, “We make a living by what we get, we make a life by what we give.” Karl gave me a lot over the past 2 decades. As a friend, he gave me an ear to talk to and a brain to pick which
was important when I was determining some of my own life choices. Even though he is no longer with us, memories of him still give me guidance. He is still teaching. I am grateful to have had him as a teacher and more grateful to have counted him as a friend.

Memories of Karl Hedrick

Rajesh Rajamani, University of Minnesota

I was fortunate to be advised by Karl Hedrick for my MS and PhD degrees during 1989-1993. This early influence had a strong impact on my research career. Some of the lessons I learned from him include respect for other disciplines and multi-disciplinary work, the importance of doing rigorous experimental evaluations, and being friendly and generous towards graduate students.

I remember Karl used to invite us occasionally for a lab party at his home in Walnut Creek. We played tennis and did swimming while at his home. At one such party, he was joking with us saying, “Anybody here who wants to graduate needs to beat me at tennis.” Several lab members had clever repartees, such as “Why didn’t you tell us this earlier? I would have at least gone to the tennis courts everyday instead of coming to the research lab!”

Karl had a significant impact on my professional career. After obtaining my PhD from Berkeley, I was working as a Research Engineer at United Technologies Research Center at East Hartford in Connecticut. He called me one day and asked me if I was interested in coming back to Berkeley to work on an important automated highway systems (AHS) demonstration. I went back to Berkeley, led the longitudinal systems team for the 1997 National AHS Consortium Demonstration in San Diego, and ended up eventually becoming a Professor. I definitely owe my switching of careers from the industrial to the academic track to Karl.

In summary, I feel happy and proud about having worked with Karl Hedrick as his advisee. His lab at Berkeley was a happy place, and to this day I strive to emulate that lab and create a similar atmosphere for my own research group.

A Short Haiku in Memory of Karl Hedrick

A. Galip Ulsoy, University of Michigan

Karl elevated our world:
Tennis, teaching, driverless car
May he rest in peace

Karl’s Memorial

Roberto Horowitz, UC Berkeley

Karl was a truly beloved and respected member of our Department, and he will be sorely missed. Karl became a member of our department in 1988 when Tomi, Dave Auslander and I were lucky enough to recruit him from MIT. His positive impact to our department and the University was immediate and long lasting. Up to his untimely death, he was one of the pillars on which our world-renowned program in dynamic systems and control and vehicle dynamics and automation rested.

Teaching Mentor:

Karl was a devoted teacher, who taught extremely popular courses in nonlinear control and vehicle dynamics, and was a beloved advisor and mentor to many students and colleagues. He graduated over 70 Ph.D. students and many of them are well-known leaders in academia and industry – some of them will be speaking later at this event.

ITS:

Karl also had a profound impact in several of our University’s research programs, particularly in the field of Intelligent Vehicles and Highway Systems, and I was asked by Alex Bayen, the current director of Institute of Transportation Studies, to say a few remarks regarding Karl’s contributions.

AHS: Karl was one of the architects of the world-renowned Automated Highway Systems research program that PATH spearheaded starting in the late 80’s. His research contributions in developing longitudinal controllers for vehicle platoons of automated vehicles are still highly relevant to today’s autonomous vehicles and were critical to the automated vehicle demonstrations that took place under the AHS program.

PATH Director: Karl later served as the director of the Partners for Advanced Transportation and Highways (PATH) program during the time when AHS funding was being severely curtailed. Despite the cuts, he maintained the strength of the by steering it into exciting new directions.

Chair and Budget:

Karl served our department and the campus in an admirable manner. He was the Chair of the mechanical engineering department, while simultaneously serving as PATH director, a feat that is for me impossible to phantom – now that I’m currently chair after being PATH director. He was also a long-serving member of the campus budget committee, which is the most important committee on the campus and is charged with reviewing all academic merit and promotion cases as well as recommending salary increases.

More recently, Karl, together with Francesco Borrelli, created the Hyundai Center of Excellence, which is among the premier academic research centers in the country that are dedicated to vehicle dynamics, control and autonomy.

Personal:

Karl was among the selected group of people that had a “magical touch” and could affect people in a very positive manner, even unintentionally. Let me finish by recalling an instance in which he positively and profoundly affected me.

As Department Chair, Karl appointed me Vice Chair of Graduate Studies and gave me the opportunity to learn how to do academic administration, under his competent and efficient tutelage. More importantly, he also hired Donna Craig as the head of the department’s student services office and this is how Donna and I met. Donna and I have been happily married for several years.

Thank you, Karl!
Karl’s Memorial
Masayoshi Tomizuka, UC Berkeley

In the fall semester of 1986, I was asked to chair the faculty search committee in the area of controls. At that time, we had a small but extremely popular control program, with Roberto Horowitz, Dave Auslander, and I each supervising 15 to 20 research students.

The department program was known for having strong components in both theory and application, and we were seeking someone with similar strengths. At the time, Karl was a full professor at MIT, and was known for his outstanding contributions to nonlinear control theory and its application to vehicles. Karl and I knew each other well by then. We originally got to know each other shortly after he joined MIT and I joined Berkeley in 1974. When we launched into the faculty search in 1986, he was the ideal candidate for the position, and luckily I was able to convince Karl to apply for the open faculty position.

Fortunately for all of us, Karl joined us in 1988. He built a strong and visible research program of his own quickly. As it turned out, hiring Karl did not solve our problem of having too many research students in our department for the number of faculty we had in the area of controls. We ended up with attracting an even larger number of research students!

When Karl joined us, UC Berkeley was starting a program on highway automation called PATH, Program on Advanced Transit and Highway. Karl and I were charter members of PATH. On automated highways, vehicles must be automatically controlled in two directions: first, in a longitudinal direction to allow vehicles to be close to the car in front of it so that they can “car platoon,” we like to say; and second, in a lateral direction to keep vehicles inside their lanes on highways and also to allow them to switch lanes. Karl worked on the longitudinal control piece and I worked on the lateral control piece. This arrangement worked very nicely for both of us. We jointly organized workshops, presented a review paper on vehicle controls for automated highway systems, and had opportunities to travel together to attend conferences and visit automotive companies.

In age and in seniority, Karl and I were close to each other. When he joined the department in 1988, we were both full professors but still relatively young. It was my good fortune to have a wonderful colleague like Karl to grow older with – personally, academically and professionally. Thank you, Karl, for stimulating and inspiring me over the years. I miss you very much, but I will always remember you, our friendship, and the important contributions that you made to UC Berkeley and to our profession.
Remembering Karl Hedrick from MIT Days

Joseph Beaman, Dong-il "Dan" Cho and Eduardo Misawa

Karl was a young professor – only 3 years after his Ph.D. – when he joined MIT in 1974. By the time I got to know him in 1983, he was well-established and internationally well-known for his work in nonlinear system analysis, control and estimation, as well as vehicle dynamics and control. Among all graduate students, he was very well respected as the expert in those scientific and technical areas. He was always an easily-approachable professor, great mentor, and thesis advisor. He had an amazing skill to explain the most difficult concepts in very accessible ways. As such, the courses that he taught were always full. I (Eduardo) remember it well because I was the teaching assistant for graduate level systems and controls courses that he regularly taught both in the MIT’s graduate program as well as summer extension courses for industrial practitioners. In the same way, he was a graduate advisor for a large number of students in his Vehicle Dynamics Laboratory (VDL) for whom he became a life-long mentor and a friend.

And he has been known at MIT among his colleagues as “an all-around great person” and according to Leslie Regan at MIT: “a fabulous teacher and mentor to all.”

Karl was also known as a top-notch athlete, and he had a parallel research and consultant activity with tennis magazines and with international tennis association. At MIT he was one of the “rocket scientists” involved in testing and researching tennis rackets. His life-long interest and dedication for sports led him to continue to play tennis competitively in the masters age group. Karl was well-known to be a family person involved in tutoring his daughters and coaching tennis and soccer. His family was his highest priority.

For all his students, he passed his passion for application-driven rigorous research and his candor to be a mentor and a genuine human being, features that we all inherited from him. For us, it gives a special meaning to “academic siblings”.

Karl Hedrick’s last visit to MIT (from left to right: Eduardo Misawa, Leslie Regan, Karl Hedrick, Joan Kravit and Dong-il “Dan” Cho); photo credit: Dong-il “Dan” Cho

Cover of World Tennis Magazine (1981); Courtesy of Leslie Regan

Eduardo Misawa

Professor John J. Moskwa peacefully passed away surrounded by his family and friends on June 3, 2017 after battling pancreatic and liver cancer. He is survived by his two children, Joe and Susan Moskwa, and his wife Arlinda Michael.

He was an accomplished musician who began his musical studies with piano and trumpet. He studied and performed music seriously throughout high school and at Wayne State University and the Cleveland Institute of Music, where he was a Principal Trumpet. He taught and played at the University of Guadalajara and played Principal Trumpet with the Symphony Orchestra of the Northwest (Mexico). After his return to US he played with the Bloomington Symphony and regularly attended concerts of major symphonic orchestras, while continuing with engineering consulting activity. On June 3, 2017, our community lost an outstanding colleague and dear friend. We will miss him.

Researchers in the Powertrain Control Research Laboratory (PCRL) at the University of Wisconsin-Madison have, for over 10 years, been developing transient test systems for single-cylinder research engines (SCE) that replicate the dynamics of a multi-cylinder engine (MCE). This is accomplished by replicating the cylinder instantaneous boundary conditions that exist in the MCE. This article is a brief overview of the lab’s most recent system and developments.

The Problem Being Addressed: Most automotive engines used in vehicles are MCEs, but SCEs are still used extensively in engine research and sparingly in engine development. MCEs and SCEs operate very differently in terms of rotational dynamics, heat transfer, and gas dynamics both outside and inside the cylinder, as well as other dynamic properties. Hence, findings from the use of SCEs are not representative of what occurs in MCEs. Also, typical SCE setups used in most research centers have not differed substantially from what was used 50+ years ago, with very little thought given to the actual dynamic operation of the engine, although there are exceptions I have seen used by formula 1 race teams.

PCRL’s SCE Transient Test Systems: Researchers at PCRL have designed, built, tested, and patented variations of a transient test system for SCEs that replicate the instantaneous dynamic performance of MCEs. While additional subsystems are under consideration, I discuss three subsystems that have been developed for rotational dynamics, intake gas and/or exhaust gas dynamics, and heat transfer.

Single-Cylinder Engine (SCE) Transient Test System

John J. Moskwa, Mechanical Engineering Department, University of Wisconsin-Madison

(Re-sharing John’s 2015 Newsletter article)
dynamics, and cylinder heat transfer dynamics. The entire transient test system is shown in Figure 1.

The SCE rotational dynamics simulator \cite{4,5} replicates the instantaneous crankshaft rotational velocity throughout the engine cycle that would exist in a MCE. This is accomplished through the use of a hardware-in-the-loop (HIL) system that is the synthesis of a real-time dynamic engine model and a low inertia transient dynamometer. The engine model simulates the dynamics of the missing or virtual cylinders of a MCE, and includes the slider crank geometry and dynamics of each cylinder, as well as combustion, heat transfer, friction and related sub-models to simulate the torques that are imposed on the crankshaft by each cylinder. When put together, these sub-models simulate the instantaneous torque profile throughout the cycle that would be imposed on a cylinder within the MCE. The torque data is then applied to the SCE by means of a transient dynamometer system, resulting in the engine speed trajectory throughout the cycle that exists in the MCE. Currently, a hydrostatic dynamometer is designed and built in PCRL, but a high-quality low-inertia transient electric dynamometer system could also be used for this application. The result is a virtual engine dynamic simulator. Examples of engine speed experiment data profiles are shown in Figure 2.

The SCE intake gas dynamics simulator \cite{6} replicates the instantaneous gas intake dynamics throughout the engine cycle that would exist in a MCE. This is accomplished by means of a double-walled chamber where the inner space is the intake plenum and the outer space is a vacuum. These two spaces are separated by means of a number of high speed pneumatic valves that control the flow of gas out of the plenum representing the flow that would go to the other runners of a MCE intake manifold. The valves are dynamically controlled to control the plenum pressure profile in the MCE. This profile can be established by means of another HIL system representing the MCE intake system, or it can be imposed from data collected from a MCE test. Either way, a control system monitors this instantaneous pressure and carefully controls it. The runner connection between the plenum and the intake valve is identical to the runner geometry and length of the MCE. The resulting gas flow through the intake valve is now identical to the MCE, due to the exact runner geometry for Helmholtz resonances, and careful control of the plenum pressure trajectory. The intake air simulator (IAS) concept is shown in Figure 3, and representative experimental data are shown in Figure 4.

Since the design of the original IAS, there have been two upgrades to address deficiencies. IAS2 \cite{7} uses a combination of proportional and poppet valves to decrease the required number valves and reduce the complexity of the control system and hardware. A variation also uses a combination of vacuum and pressure chambers (also an option in the original IAS) to improve desired pressure profile tracking. IAS3 uses a combination of proportional and rotary valves to further simplify the control strategy and significantly increase the maximum engine speed where this system can be used. IAS3 has been simulated to 15,000 rpm with reasonably accurate results \cite{8}.

The SCE cylinder heat transfer dynamics simulator \cite{9} replicates the cylinder liner temperature and heat transfer profiles circumferentially around the cylinder that exists in a target cylinder within a MCE. As mentioned earlier, the cylinder sleeve temperature varies circumferentially around each cylinder and the temperature profiles vary from cylinder to cylinder. Figure 5 shows typical liner temperature distributions for one bank of a V-6 engine with crossflow coolant.

The temperatures and heat transfer around the cylinder liner is controlled by means of 6 independent coolant passages. In the original heat transfer system (HTS) both the temperature and flow rates in each passage or zone were controlled independently of the other.
passages or zones. This allows the temperature profiles around the circumference of the liner to be controlled. A seventh zone is in the cylinder head, which can also be independently controlled. The construction of the cylinder block is shown in Figure 6.

A new version of the heat transfer system (HTS2) shown in Figure 1 [10] has been designed and built. This system uses a common controlled coolant temperature for all zones and controls each zone temperature independently through variations in coolant flow. This new approach significantly simplifies the control strategy of the system, and results in better temperature control, in addition to overcoming several practical implementation problems that arose with the original system.

The complete SCE transient test system presented in Figure 1 can represent a virtual MCE or a virtual powertrain, as shown in the experimental data in Figure 2 accelerating through the gears. This system is capable of performing a number of dynamic engine tests that are currently not possible with typical SCE test stands. These tests include transient cold start, FTP or other emission test procedures, exploring correlations between cylinder liner temperatures and emissions, effects of powertrain design or transmission control strategies on engine emissions, any rapid transient test with slew rates to 10,000 rpm/sec, etc.

The author would like to thank both GM Powertrain and Ford Motor Company for their support of this program, as well as the many students that made useful contributions to the transient test system program.

References

Young Investigators in Dynamic Systems and Controls

In this article, we speak with six awardees of the 2016 Faculty Early Career Development (CAREER) award from the National Science Foundation (NSF). The CAREER Program is “a Foundation-wide activity that offers the National Science Foundation’s most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization.” Our six guests received the award from the Dynamics, Control and Systems Diagnostics Program in the Division of Civil, Mechanical and Manufacturing Innovation (CMMI). In our dialogues with them, we asked about the general scopes of their research, their engagement with, and vision of, the fields, and their related educational practice.

Dr. Zheng Chen is currently a Bill D. Cook Assistant Professor in Mechanical Engineering at the University of Houston and directs the Bio-inspired Robotics and Controls Lab there. Dr. Chen received his PhD degree from Michigan State University (MSU) in 2009. His Ph.D. dissertation at MSU exploited a control systems perspective to examine ionic polymer-metal composite artificial muscles and sensors. That work produced a number of highly cited publications and a US patent. Dr. Chen was a postdoc with University of Virginia, an R&D engineer with Baker Hughes, and then an assistant professor with Wichita State University prior to joining the University of Houston in 2017. Dr. Chen’s research interests are focused on bio-inspired robotics, smart material artificial muscles and sensors, renewable energy systems, dynamic systems and controls.

Dr. ShiNung Ching is currently the Das Family Career Development Assistant Professor in the Preston M. Green Department of Electrical and Systems Engineering at Washington University in St. Louis. He holds secondary appointments in the Department of Biomedical Engineering and the Division of Biology and Biomedical Science. Dr. Ching received his B.Eng (Hons.), M.A.Sc., and Ph.D. degrees from McGill University in 2003, the University of Toronto in 2005, and the University of Michigan in 2009, respectively. He was subsequently a postdoctoral associate at the Massachusetts Institute of Technology and the Harvard Medical School from 2009-2013. Dr. Ching’s research interests are in the intersection of systems and control theory, theoretical neuroscience and neural engineering. He is author of over 60 refereed papers and the textbook “Quasilinear Control”.

Dr. Robert D. Gregg IV received the B.S. degree in Electrical Engineering and Computer Sciences from the University of California, Berkeley in 2006 and the M.S. and Ph.D. degrees in Electrical and Computer Engineering from the University of Illinois at Urbana-Champaign in 2007 and 2010, respectively. He joined the Departments of Bioengineering and Mechanical Engineering at the University of Texas at Dallas as an Assistant Professor in June 2013 with an adjunct appointment at the UT Southwestern Medical Center. Prior to joining UT Dallas, he was a Research Scientist at the Rehabilitation Institute of Chicago and a Postdoctoral Fellow at Northwestern University. Dr. Gregg has over 50 peer-reviewed publications and 5 patent applications on the design and control of legged robots, powered prosthetic legs, and exoskeletons. He is a recipient of the NSF CAREER Award, the NIH Director’s New Innovator Award, and the Career Award at the Scientific Interface from the Burroughs Welcome Fund. His work has been recognized with the Best Student Paper Award of the 2008 American Control Conference and the 2015 IEEE Conference on Decision & Control, the Best Technical Paper Award of the 2011 CLAWAR Conference, and the 2009 O. Hugo Schuck Award from the IFAC American Automatic Control Council.

Dr. Ross L. Hatton is an Assistant Professor of Robotics and Mechanical Engineering at Oregon State University, where he directs the Laboratory for Robotics and Applied Mechanics. He received PhD and MS degrees in Mechanical Engineering from Carnegie Mellon University, following an SB in the same from Massachusetts Institute of Technology. His research focuses on understanding the fundamental mechanics of locomotion and sensory perception, making advances in mathematical theory accessible to an engineering audience, and on finding abstractions that facilitate human control of unconventional locomotors. Hatton’s group also works with local industry to transfer modern developments in robotics from the lab to the factory.

Dr. Hae Young Noh is an assistant professor in the Department of Civil and Environmental Engineering and a courtesy assistant professor in the Electrical and Computer Engineering at Carnegie Mellon University. Her research interest is in indirect sensing to infer information about dynamic systems using statistical signal processing and machine learning techniques, particularly algorithm development for smart structures and systems to conserve energy and resources, provide safe, functional, and sustainable environments, and improve people’s quality of life. Her current research projects include vehicle-based infrastructure monitoring and building vibration based human and environment sensing. She received her Ph.D. and M.S. degrees in the Civil and Environmental Engineering department and the second M.S. degree in Electrical Engineering at Stanford University. She studied Mechanical and Aerospace Engineering at Cornell University as an undergraduate. She received the Google Faculty Research Award in 2013 and 2016, and the National Science Foundation CAREER award in 2017.

Dr. Simona Onori received her Laurea Degree, summa cum laude, (Computer Engineering) in 2003, her M.S. (ECE) in 2004, her Ph.D. (Control Engineering) in 2007, from University of Rome ‘Tor Vergata’, University of New Mexico, Albuquerque, USA, and University of Rome ‘Tor Vergata’, respectively. She has been an Assistant Professor at Clemson University International Center for Automotive Research (CU-ICAR) since August 2013, where she also holds a joint appointment with the Electrical and Computer Engineering. She holds visiting professor positions at University of Trento,
Prior to joining the CU-ICAR faculty, Dr. Onori was a research scientist and lecturer at the Ohio State University. Her background is in control system theory and her current research focuses on control application with emphasis on ground vehicle propulsion systems, including electric and hybrid-electric drivetrains, aftertreatment and electrochemical energy storage systems, and waste heat recovery systems. Her research is currently funded by GM, Fiat Chrysler Automobile, Borg Warner, US Army and NSF. She has co-authored a book on Energy Management Strategies for HEVs, two-book chapters and more than 70 peer-reviewed papers in journals and conferences. She serves as chair of the IEEE CSS Technical Committee of Automotive Controls, and vice-chair of IFAC Technical Committee of Automotive Control, and she is a member of IEEE, ASME, SAE, IFAC and various technical committees. She has served in the IEEE CSS and ASME DSCD Conference Editorial Board since 2014 and 2012, respectively, and she is Senior Member of IEEE.

She is the recipient of the 2017 NSF CAREER Award, the 2017-2019 College of Engineering and Science Dean’s Faculty Fellow Award, Clemson University, the 2017 Esin Gulari Leadership & Service Award in the College of Engineering, Computing and Applied Sciences, Clemson University, 2016 Energy Leadership Award in the category Emerging Leader (for the Carolinas), the 2015 InnoVision Award (South Carolina), 2012 Lumley Interdisciplinary Research Award by OSU College of Engineering and the TechColumbus 2011 Outstanding Technology Team Award.

Zheng: This CAREER project aims to realize artificial muscle with mechanical and dynamic properties similar to natural muscle. In particular, this project considers the use of dielectric elastomers (DEs) that have compliance, resilience, and energy density per mass comparable to biological muscles. Like biological muscles, these materials can be self-sensing, allowing precise control of contraction or extension without auxiliary sensing schemes. The ultimate goal of the project is to achieve dexterous, lightweight, and energy-efficient prostheses using DE-based artificial muscles, in contrast to the heavy and inefficient electric motors of the current generation of robotic arms. The project incorporates aspects of bio-inspired design, device fabrication, and dynamic modeling, sensing, and control. The success of this project will help provide affordable, reliable, and comfortable prostheses to the estimated two million military veterans and civilians who have lost hands, arms, or legs to accidents, natural disasters, wars, diseases, or aging.

Q. What do you see as some of the challenges and opportunities in dielectric elastomer artificial muscles?

Zheng: I have seen great opportunities in DE artificial muscles for prosthetic applications. DEs have built-in sensing and actuation capabilities which allow integrated sensing and feedback control without a bulky external sensor. The energy per mass density of DEs is comparable to human muscles, which makes the prostheses affordable in weight for people to carry on. DEs are compliant and resilient, which allows a comfortable prosthetic design. Although there are many advantages, I have also seen many great challenges in, e.g., bio-inspired artificial muscle structure design, safe operation of DE material, nonlinearities in sensing and actuation dynamics, integrated sensing and feedback control, and system integration.

Q. What are some of your experiences about integrating education in research?

Zheng: I developed a new graduate course on smart material sensors and actuators at Wichita State University. Although innovation is a fundamental basis for research, not all graduate students received proper training on innovation. I realized that smart material sensors and actuators are promising research areas in which students can learn how to innovate. To introduce this new class, I gave a seminar on electroactive polymers to graduate students, which led to a surprising 56 enrollments from the College of Engineering. I selectively gave lectures on special topics in shape memory alloys, ionic polymer-metal composites, dielectric elastomers, and piezoelectric materials, in which I covered basic techniques in smart materials, such as modeling, control, and fabrication. Then the students were encouraged to search for recent advanced technologies in smart materials, to summarize the advantages and disadvantages of existing technologies, and to develop their own ideas. The course sparked active interests and many great ideas on biomedical devices, bio-inspired robots, and energy harvesting and storage devices. For example, Ms. Alicia Keow developed a novel solar energy storage system using ionic polymer-
metal composite in this class and presented her research at the 14th Annual Capitol Graduate Research Summit in the State Capitol of Kansas on March 10th 2017. She received the best project award in that summit. After this class, Ms. Keow decided to work with me to pursue her PhD study at the University of Houston.

Q&A with Dr. ShiNung Ching about his research titled “CAREER: System Theoretic Methods for Understanding the Dynamics of Cognition”

Q. Could you tell us a bit about your CAREER project?

ShiNung: Understanding how the human brain sustains cognition, i.e., our ability to sense and think, is a defining problem in neuroscience. This project supports the development of a research program to study the neural mechanisms of cognition through the lens of dynamical systems and control theory, and an educational program to highlight the connection between neuroscience and engineering. The program is motivated by: (i) the recognition that networks in the brain are, fundamentally, dynamical systems and, (ii) the theoretical supposition that such dynamics, and the control properties they confer, are consequential to cognition. As technologies for recording and manipulating brain circuits continue to develop, building an understanding of how the brain controls itself is a crucial precursor to eventual translational applications such as restoration of cognitive function through neurostimulation. Thus, this proposal seeks dynamical and control methods to reveal control strategies within the brain, so that eventually we can take advantage of this knowledge when devising stimulation-based interventions. Trained in both control theory and computational neuroscience, I will pursue this goal through the development of novel modeling and theoretical frameworks, and data-driven analysis approaches that will be used in concert with electrophysiological recordings from humans with quantifiable deficits in cognitive function.

Q. How did you enter the field of control theory and neuroscience?

ShiNung: Towards the end of my Ph.D., I became interested in the use of dynamical systems modeling to understand network-level phenomena in neural circuits. I subsequently discovered the work of Emery N. Brown and Nancy Kopell, who were using modeling to describe the effects of general anesthesia in the brain. I was fortunate to have the opportunity to become involved in that research as a postdoc, during which time I became exposed to many problems in neuroscience and brain medicine wherein control theoretic-principles can play a significant role.

Q. What do you see as some of the challenges and opportunities in control theory and neuroscience?

ShiNung: One of the major questions in neuroscience involves understanding how information is transformed and processed in neural circuits. At a systems level these circuits can be understood in terms of their dynamics and their subsequent input-output properties. As control engineers, we are very good at analyzing mathematical models of systems to elucidate such properties. However, brain networks have a number of interesting dynamical features that render classical methods ineffective from an analytical perspective. Thus, I believe there is a tremendous opportunity in control theory to think about how to define neural circuit control properties and, perhaps more importantly, relate them to performance in the form of information processing. In turn, this will lead to other opportunities, including engineering new ways of modifying brain activity using stimulation for certain clinical applications.

Q. What are some of your experiences about integrating education in research?

ShiNung: As a faculty member at Washington University, I have been fortunate to interact with students who have a keen interest in research. As a consequence, my colleagues and I have been able to incorporate several brain-related activities into our senior-level control engineering course, as well as to develop a new graduate level course that spans topics in control theory and neuroscience. As well, over the past several years I have worked with educators in the St. Louis region to develop a teaching module that allows high school students to learn about neural engineering by visualizing their own brain activity using a low-cost electroencephalogram device. In addition to providing opportunities for students in our city, this has also been a great experience for my graduate students in terms of integrating them into the role of our University as a place for research, education and community engagement.

Q&A with Dr. Robert Gregg about his research titled “CAREER: Recovering and Enhancing Natural Locomotion in Changing Conditions with Powered Lower-Limb Prostheses and Orthoses”

Q. Could you tell us a bit about your CAREER project?

Bobby: Even with the help of modern prosthetic and orthotic (P&O) devices, lower-limb amputees and stroke survivors often struggle to navigate stairs, slopes, and uneven terrains. Emerging powered P&O devices could actively assist patients to enable greater mobility, but these devices are currently designed to produce one specific type of motion at a time. Hence, these devices cannot adapt to changes in the user’s activity or the environment. A paradigm shift from task-specific, kinematic control approaches to task-invariant, energetic control approaches is needed for wearable robots to assist their human users across varying locomotor activities. This project will advance knowledge in the control of powered P&O devices by investigating a new task-invariant paradigm based on energy shaping, in which wearable actuators alter the parameters and/or formula for the human body’s en-
ergy in closed loop to achieve more desirable dynamics and thus kinematics. Accordingly, the goals of this project are to 1) understand how to use wearable actuators to shape the energetics of the human body during locomotion, 2) determine specific changes to body energetics that lead to effective control strategies for powered prosthetic legs and powered leg orthoses (i.e., exoskeletons), and 3) understand how different gaits (i.e., kinematic patterns) emerge from body energetics in order to design task-invariant controllers for powered P&O devices. This work is significant by enabling individuals with a stroke or lower-limb amputation to freely navigate the different terrains in their homes and communities for an improved quality of life.

Q. How did you enter the field of robotic prostheses and orthoses?

**Bobby:** My graduate research at the University of Illinois was on energetic control of dynamic walking robots. As I was nearing the completion of my dissertation, I began looking for a new area to apply my expertise. Although I did not know much about prosthetics and orthotics at the time, I saw that as an area in need of robotic technologies to improve outcomes for lower-limb amputees and stroke patients. I decided to jump into that new area through a post-doctoral fellowship at the top rehabilitation hospital in the U.S., the Ability Lab (formerly Rehabilitation Institute of Chicago), where I spent three years learning about the clinical challenges in prosthetics and orthotics and how to translate my expertise into new clinical solutions. From there I founded my laboratory at the University of Texas at Dallas with the mission of developing high-performance wearable robots to enable mobility and improve quality of life for persons with disabilities.

Q. What do you see as some of the challenges and opportunities in robotic prostheses and orthoses?

**Bobby:** The research community has made great progress in the design and control of robotic prostheses and orthoses, but these technologies have faced many roadblocks to commercialization and clinical acceptance. Many of the research platforms we see in journal publications require expertise in control systems to configure for a patient, which is not feasible in a clinical setting. Even an expert team of researchers can spend many hours tuning the control gains and joint trajectories of a robotic knee-ankle prosthesis for each amputee user. These control systems are designed to track pre-defined reference gait patterns, which cannot adapt to varying environments, different users, or behavioral changes as the user relearns how to walk. Motivated by my dissertation research almost a decade ago, I see an opportunity to address these challenges with an energetic control paradigm as proposed in my CAREER project. Instead of tracking reference joint trajectories, controlling the energy of the human-robot system can produce different joint kinematics in response to forceful interactions with the environment and user. This could enable seamless adaptation to different users, activities, and environments, which will eliminate the need for tuning pre-defined kinematic patterns for all possible scenarios. The big question is how to control the energy of the human-robot system to yield correct kinematic behaviors, which I hope to address in my CAREER project.

Q. What are some of your experiences about integrating education in research?

**Bobby:** I am currently integrating my research into the curriculum of the Prosthetics-Orthotics program at the UT Southwestern Medical Center. This program provides clinical support for my research and also clinical training opportunities for my engineering students. In return, I am developing lectures on robotic prosthetics and orthotics technologies so that tomorrow’s prosthetists are better able to adopt these technologies in their clinical practice. I also plan to offer a motion capture lab module in my gait lab so that prosthetics students become more familiar with gait analysis methods and quantifying gait abnormalities. These efforts will also facilitate greater interaction between clinical and engineering students and provide opportunities to collaborate in my CAREER research.

Q&A with Dr. Ross L. Hatton about his research titled “CAREER: Geometric Understanding of Locomotion”

Q. Could you tell us a bit about your CAREER project?

When systems have joint limits (i.e., they have limbs instead of wheels or propellers), their ability to locomote depends on how effectively they can change their interaction with the environments at different points in a gait cycle. When these interactions are first-order constraints and they change smoothly with the system’s shape, locomotive effectiveness can be characterized via a Lie bracket (a structure closely related to the curl of a vector field). This project seeks to extend this concept to include direction-dependent effects (e.g., friction from backwards-pointing spines or bristles), second order dynamics (e.g., elastic tails or wings in air), infinite-dimensional systems, and hybrid systems (e.g. walkers that can lift their feet from the ground). Specific systems that will be made accessible to geometric analysis by this project include, 1) systems with many shape variables, whose curvature is a high-dimensional structure; 2) hybrid systems, which have "corners" in their dynamic curvature; 3) ratcheting systems, whose reaction forces depend on the sign of the relative motion; 4) elastic systems, whose gait cycles partially emerge from their passive dynamics; and 5) gliding systems, whose gait effectiveness is better characterized by momentum transfer than by displacement induced.

Q. How did you enter the field of geometric mechanics?

**Ross:** In graduate school I worked on snake robots. Working with the physical geometry of the snakes led me to work on the abstract geometry of their physics of locomotion.

Q. What do you see as some of the challenges and opportunities in geometric mechanics?
Ross: Much of the foundational work in this field is in the language of mathematics, which can make it difficult for an engineer to adopt the tools it provides. A large part of my work aims to bridge this gap, and translate the concepts into more accessible language.

Q. What are some of your experiences about integrating education in research?

Ross: Bringing concepts from differential geometry into engineering and the educational process pushes me to distill them down to their essential components, which I believe results in a stronger, more robust understanding of the principles.

Q&A with Dr. Hae Young Noh about her research titled “CAREER: Structures as Sensors: Elder Activity Level Monitoring through Structural Vibrations”

Q. Could you tell us a bit about your CAREER project?

Haeyoung: Smart buildings are designed to sense, understand, and respond to occupants’ needs to enhance their quality of life in a sustainable way. For example, elder care facilities aim to maintain or improve the quality of life and independence of elders while reducing costs and capacity needs for care-professionals. One key to achieving this goal is to understand the activities of each occupant. Existing solutions to monitor occupants, such as vision, acoustic, motion, and force sensors and mobile devices, have such as vision, acoustic, motion, and understanding the activities of each occupant.

One key to achieving this goal is to understand the activities of each occupant. Existing solutions to monitor occupants, such as vision, acoustic, motion, and force sensors and mobile devices, have strict installation requirements. These requirements lead to intrusive and dense deployment, or require active user involvements. Instead, this project builds on the fact that occupants create building vibrations when they walk around. The project goal is to enable real-time robust inference of individual occupants’ walking activity levels, from building floor vibrations. Using building vibration to monitor occupants allows non-intrusive and scalable monitoring with inexpensive vibration sensors. More generally, this research will enable smart buildings to sense, track, and predict the status of occupants in a maintainable way using "structures as sensors" and thus enable future occupant-aware applications. The resulting analysis tools for noisy vibration data will advance the science in signal processing and uncertainty modeling, which is widely applicable to other fields, including structural health monitoring, vehicle dynamics, manufacturing, and earthquake engineering.

Q. How did you enter the field of human activity monitoring through building vibrations?

Haeyoung: Initially, I was investigating building vibration data for structural damage diagnosis purposes. The building vibration responses often contain lots of noises incurred by occupants, machinery, and water systems indoor, so we used to filter them or conduct experiments during quiet hours with less activities. Then, one day we realized various human activity information (such as location, identity, activity type, activity level, etc.) can also be inferred from the building vibration responses, just like structural damage information. Further, sensing humans through structures provides nice benefits due to its indirect nature, like non-intrusiveness, less perceived privacy concerns, and simple and robust installations. A followup conversation with my partners in eldercare revealed a great potential for using this technology for elderly activity monitoring and fall prevention, which inspired my research pursuit in this field.

Q. What do you see as some of the challenges and opportunities in human activity monitoring through building vibrations?

Haeyoung: The main challenge in this research is to extract target information like “grandma is likely to fall after 10 steps,” and “today grandpa got out of his routine morning activity sequence and sat down longer” from very noisy signals. Building vibration responses are induced by multiple sources such as people walking around, water facet, fans, etc., which makes the separation of individual source information difficult. On the other hand, such mixture enables the signals to have rich information and many different information can be extracted from only sensing building vibration. This significantly reduces installation and maintenance costs.

Q. What are some of your experiences about integrating education in research?

Haeyoung: I integrated research components into project courses for undergraduate and graduate students at Carnegie Mellon. These courses incorporate smart building applications, which involve sensing, signal processing, probabilistic modeling, and decision making. I focus on hands on experiences to show students how knowledge from different areas can be synthesized to achieve a novel goal and benefit people. In addition, initial exploratory ideas and applications for the research are tested through course projects. Further, I work with local middle school girls through the Summer Engineering Experience program at Carnegie Mellon to increase gender diversity in science and engineering at the critical time when girls develop their future career interests.

Q&A with Dr. Simona Onori about her research titled “CAREER: Integrated Modeling and Control of Aftertreatment Systems for Clean, Efficient and High-Performing Gasoline Direct Injection Engines”

Q. Could you tell us a bit about your CAREER project?

Simona: Gasoline direct injection engines have better fuel economy than
more conventional port fuel injection engines. But the new technology results in higher fine-particle emissions that can be hazardous to people’s health. As the number of vehicles using GDI engines increases, the need to safeguard public health by mitigating particulate emissions becomes an urgent social concern. Particulate emissions are one of the most unwanted but least understood hazards from GDI engines. This Faculty Early Career Development (CAREER) project will enable future vehicles to benefit from the improved efficiency and performance of gasoline direct injection (GDI) engines, without suffering from increased soot emissions. An integrated approach is necessary because engine operating conditions determine oxygen and fuel content and temperature of the exhaust gas, which influences the output of the catalytic converter, which in turn governs soot accumulation and oxidation in particulate filters. While the dynamics of diesel engine particulate filters are well understood, particulates produced in GDI engines have substantially different characteristics. In this CAREER project, we will use advanced modeling techniques to predict when soot will accumulate and when to burn it off to prevent plugs and keep the engine running smoothly and efficiently. The proposed modeling framework is at the intersection of macroscale modeling, numerical simulations and optimization theory. System-level models of the engine, catalytic converter, and gasoline particulate filter will be integrated across length scales. The framework will enable formulation of low-order models of aftertreatment systems suitable for real-time optimization-based control, based on systematic and rigorous reduction of continuum models while maintaining accuracy and fidelity.

**Q.** How did you enter the field of aftertreatment and emission control research?

**Simona:** When I started my tenure-track position at Clemson, I had the great opportunity to be the PI of an industry sponsored project on control of advanced aftertreatment systems back in 2014. That’s when I started being passionate about the aftertreatment system topic. This NSF CAREER focuses on the challenges posed by the modeling and control of new generation emission control devices, such as Gasoline Particulate Filters (GPF). These filters are used to reduce Particulate Matters (PM) – fine particles that are dispersed in the air – released by the Gasoline Direct Injection (GDI) engines. This project will enable new exhaust gas aftertreatment technologies for GDI engines, based on a novel macroscale modeling framework, and the generation of numerical tools for optimization strategies.

**Q.** What do you see as some of the challenges and opportunities in the aftertreatment and emission control research?

**Simona:** As more and more automakers make the claim that they will end the production of only-engine vehicles, one of the challenge/opportunity for control engineers is the integration and control of technologies like, for instance, GDI, GPF, and battery and supercapacitors, in a coordinated fashion that will preserve longevity of some of those components while obtaining the most of the vehicle performance. Multi-objective optimization constrained problems, for both offline and online implementation, will be a dominant research area in my mind. Another challenge is the problem of online estimation of internal, associated-withaging, parameters of components like battery and GPF. These systems are described by nonlinear PDE.

**Q.** As more and more automakers make the claim that they will end the production of only-engine vehicles, one of the challenge/opportunity for control engineers is the integration and control of technologies like, for instance, GDI, GPF, and battery and supercapacitors, in a coordinated fashion that will preserve longevity of some of those components while obtaining the most of the vehicle performance. Multi-objective optimization constrained problems, for both offline and online implementation, will be a dominant research area in my mind. Another challenge is the problem of online estimation of internal, associated-withaging, parameters of components like battery and GPF. These systems are described by nonlinear PDE.

**Q.** What are some of your experiences about integrating education in research?

**Simona:** I always strive to bring recent research developments in my classes. My field of research is continuously evolving and it is mandatory to update the class material with the latest findings and technologies used in the field. As part of this NSF CAREER my goal is to create a graduate course that collects results from the project, titled “Modeling and control of exhaust gas aftertreatment systems”, to be offered also as distance education course to industrial partners.
Tenth ASME Dynamic Systems and Control Conference 2017

DSCC 2017

October 11-13, 2017
Sheraton Tysons Hotel, Tysons Corner, Virginia

The DSC Conference, organized and led by the members of the ASME DSC Division, provides a focused and intimate setting for dissemination and discussion of the state of the art in the broad area of dynamic systems and control from theory to industrial applications and innovations in education.

In addition to regular sessions, the conference program will also include contributed sessions, invited sessions, tutorial sessions, special sessions, workshops, and exhibits.

Visit https://www.asme.org/events/dscc for details

2018 American Control Conference

Milwaukee, WI
June 27-29, 2018

The 2018 American Control Conference will be held Wednesday through Friday, June 27-29, at the Hilton Milwaukee City Center Hotel in the heart of Milwaukee, Wisconsin – mere steps from the Lake Michigan shoreline. The conference venue is near nightlife, restaurants, shopping, and entertainment, including the Henry Maier Festival Grounds - host to the world’s largest music festival, SummerFest, which will celebrate its opening day alongside the ACC.

The ACC is the annual conference of the American Automatic Control Council (AACC), the U.S. national member organization of the International Federation for Automatic Control (IFAC). National and international society co-sponsors of ACC include American Institute of Aeronautics and Astronautics (AIAA), American Institute of Chemical Engineers (AIChE), Applied Probability Society (APS), American Society of Civil Engineering (ASCE), American Society of Mechanical Engineers (ASME), IEEE Control Systems Society (IEEE-CSS), International Society of Automation (ISA), Society for Modeling & Simulation International (SCS), and Society for Industrial & Applied Mathematics (SIAM).

The 2018 ACC technical program will comprise several types of presentations in regular and invited sessions, tutorial sessions, and special sessions along with workshops and exhibits. Submissions are encouraged in all areas of the theory and practice of automatic control.

Photographs courtesy of VISIT Milwaukee
ASME DSCD Honors & Awards Committee
Report to Executive Committee and Division Meeting
DSCC: Oct. 11, 2017

Chair: Dawn Tilbury
Vice-Chair: Santosh Devasia
Members:
As of July 1, 2017: Neville Hogan, Kim Stelson, Eric Tseng, Qian Wang, Rama Yedavalli

Activities:

1. Nominations for the two “odd year” awards were due at the end of June:
   a. Takahashi Education Award
   b. Outstanding Young Investigator Award

   Selections were made over the summer, and the awardees were notified in early September. The awards will be given at the banquet tomorrow evening.

2. Nominations for the Kalman Best Paper award of the JDSMC were received from the Editor in Chief in early August. The committee read the 3 papers and chose the winner; the award will be given in the banquet tomorrow evening.

3. The Committee discussed several questions that had been raised about the nomination process. Given the small number of nominations that have been submitted in the last few years, we do not recommend adding new requirements for more nomination letters. We do suggest the following modifications:
   a. The Young Investigator has a requirement of less than 40 years old when the nomination is due (June 30, of the awarding year). This is to replace the current rule of “after the award is presented.” The nominee’s birthdate should be included in the nomination letter.
   b. Division Award nominations should be carried over for one round (two years), assuming that the candidate is still eligible. The HAC chair is encouraged to contact the nominators and invite them to update the nomination. FYI: The Oldenburger criteria state specifically that nominations can be carried over for no more than 3 years.

4. The Committee also discussed whether a broader set of nominations should be solicited for the Kalman Best Paper Award, but decided to continue the current method where the Editor in Chief selects 3-5 papers and sends them to the H&A Committee.

5. Several award winners asked if they could attend the banquet at the DSCC to receive the award even if they were not planning to attend the conference. The H&A chair replied to these inquiries that this had been done in previous practice, and cc’d the DSCC General Chair and the ASME representative Erin Dolan. Requests were granted.
The following are guidelines and criteria for the DSC Division awards:

1. Nominees selected for the Awards must have been primary members of the DSCD for at least 5 consecutive years prior to receiving the Award and have been an active contributor to the DSCD.

2. Each Award is to be given biannually and funded from a draw from the DSCD Custodial Fund. It will consist of a plaque or framed certificate suitable for wall hanging and a citation specific to the awardee, together with a cash award in an amount of at least $500.00, but less than the cash award for the Rufus Oldenburger Award. The DSCD Executive Committee (EC) may change the amounts of the cash awards at any time.

3. Each Award may not be given to the same individual more than once.

4. The DSCD Honors and Awards (H&A) Committee will make annual solicitations for nominations for the appropriate Awards by advertising sufficiently in advance by at least an email to the DSCD members. The H&A Committee shall select the Award recipients; notify them of their selection and the need to attend the Award presentation; and arrange for the plaques/certificates to be available at the Award presentations.

5. The nominations for the Awards will consist of a cover letter of not more than two single spaced typewritten pages in 12 point font from the nominator detailing why the nominee meets the criteria for the Award (see award descriptions) and a CV or resume of the nominee. Nominations for the Outstanding Young Investigator Award should include the nominee’s birthdate, as well as any brief supporting materials (e.g., photograph, drawing, patent, paper, etc.)

6. The DSCD EC Chair shall arrange for the Award presentations in cooperation with the DSCD Dynamic Systems and Control Conference (DSCC) Program Chair and the DSCD EC Secretary, who shall prepare the cash award checks and have them available at the award presentation. Each Award shall be presented by the DSCD EC Chair or H&A Committee Chair at the DSCD Awards Banquet at the annual ASME DSCC.

7. Any member of the DSCD Honors Committee whose term on the nominating committee includes a portion of the period in any selection cycle between the first call for nominations for an award and the final selection of the awardee is ineligible for nomination for these awards.

7.8. Unselected nominations may be held for one extra round (2 years). The H&A Chair is encouraged to contact the nominators to invite them to update the nominations as appropriate.

Please send nomination packages for these awards, using the criteria and procedures given above, as a single .pdf file attached to an email to the Chair, Honors and Awards Committee, such that they are received no later than 5:00 p.m. on June 30th of each year.
Technical Committee Chairs and Membership

Automotive and Transportation: Taehyun Shim, 183 members

Biosystems and Health Care: Jun Ueda, 46 members

Energy Systems: Dongmei 'Maggie' Chen, 117 members

Mechatronics: Lei Zuo, 183 members

Robotics: Manish Kumar, 50 members

Vibrations: Dumitru Caruntu, 30 members
Technical Committee Activities (2017)

Automotive and Transportation Systems: invited session/papers received – ACC 2017 (8/62), 2017 DSCC (3/22), ACC 2018 (9/56);
Special Session – Automotive Industry Perspectives at 2017 DSCC

Bio-Systems and Health Care: 2017 DSCC (3/14)


Mechatronics: 2017 DSCC (3/14) Leadership (GC) in organizing the AIM 2017 and AIM 2020 conferences

Robotics: 2017 DSCC (3/13)

Vibrations: 2017 DSCC (3/12)

Invited Sessions at ACC are important
Meetings at DSCC

Automotive and Transportation Sys.: Wed 6:00 pm Westwood Rm
Bio-Systems and Health Care: Thursday 5:15 pm Westwood Rm
Energy Systems: Thursday 12:00 pm Wolf Trap Room
Mechatronics: Thursday 6:15 pm Westwood Room
Robotics: Wed 6:00 pm Wolf Trap Room
Vibrations: Thursday 12:15 pm Westwood Room

Let us know how the Division can help incentivize TC activities. Your TCs should have discussed this already. But feel free to email me devasia@uw.edu
More Information

Websites

https://sites.google.com/site/asmebshc/

Biosystems and Health Care: asmebshc@googlegroups.com (email alias)

Automotive and Transportation: https://www.linkedin.com/groups/4380983 (Linkedin)

Energy Systems: https://www.linkedin.com/groups/4687097 (Linkedin)
VISION

The Dynamic Systems and Control Magazine aims to be the professional forum for the members of the ASME Dynamic Systems and Control Division, with an emphasis on the highest quality expository articles on important and emerging topics, society events, and people active in the division.
Background

• *Dynamic Systems and Control Magazine* has been published quarterly (March, June, September and December) since beginning of 2013 as a 24-page supplement to ASME *Mechanical Engineering Magazine*.

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
<th>Circulation</th>
<th>Editor</th>
</tr>
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<tbody>
<tr>
<td>2013-14</td>
<td>$12,000 per issue</td>
<td>All ASME members</td>
<td>Galip Ulsoy</td>
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<tr>
<td>2015-16</td>
<td>$28,200 per issue</td>
<td>All ASME members</td>
<td>Peter Meckl</td>
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<tr>
<td>2017-</td>
<td>$15,000 per issue</td>
<td>DSCD primary and secondary members</td>
<td>Peter Meckl</td>
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Issues Completed so Far – 2013-14
Issues Completed so Far – 2015-16
Issues Completed so Far – 2017
Forthcoming Issues

• Dec. 2017 issue (v5n4) will be guest edited by Venkat Krovi and will focus on Smart Cities and Connected Vehicles in Urban Environments.

• Themes for **Future issues** will be decided at the next Editorial Board meeting (tomorrow).
Some Issues

• **Inclusion of DSC Magazine in major indexes** (e.g., Engineering Index, Google Scholar, Web of Science) is important. So far, this seems to be taking place, but not always consistently.

• It is hard to **find the DSC magazine on-line**, especially for non-ASME members. Work to include the DSC magazine in the ASME Digital Library is now underway.

• **High cost of publishing** the magazine requires some choices to ensure future viability.
**Financials**

- **Current cost is $15,000 per issue,** for a total of $60,000 per year. This represents a significant share of the total annual DSCD budget and is unsustainable.

- I have been in touch with John Falcioni, the Editor-in-Chief of Mechanical Engineering, and we are looking into several options for funding the magazine, including looking for sponsors or advertisers, or charging a membership premium to each DSCD member.
Next Steps

• **Another survey** to the readership to assess the current value of the DSCD magazine to the membership and explore options for future.

• Continue to **work with ASME** to develop a mechanism to enable the magazine to be sustainably supported.
Comments and Suggestions?

• **Articles:**
  – Topics?
  – Length?
  – Scope?

• **DSCD items:**
  – Awards, books, conferences?
  – Editorial, articles from DSCD chairs?
  – Featured DSCD member profile?
  – DSCD or control history feature?
Further Comments?

• Those interested in the DSC Magazine can contact:
  – Peter Meckl, Editor, meckl@purdue.edu