



DSCD Newsletter

Winter 2022

Chair’s Message

Xiaobo Tan

As the Chair of the Division’s Executive Committee, I thank the editorial team for this opportunity to share my thoughts and perspectives on our division’s activities and future.

Last month, our community was shocked by the untimely passing of Professor Huei Peng, a long-time member and leader of DSCD. Huei was the Roger L. McCarthy Professor of Mechanical Engineering at the University of Michigan. He was a renowned scholar on the design and control of vehicular and transportation systems, including electrified vehicles and connected and automated vehicles. An active member for over 30 years, Huei served our division in numerous roles, including chairing the Executive Committee during 2012-2013. His accomplishments in research, education, and leadership were recognized by many prestigious awards from DSCD and beyond, including the Michael J. Rabins Leadership Award (2016), the Yasundo Takahashi Education Award (2019), and the ASME Rufus Oldenburger Medal (2019). A dear colleague, friend, and mentor to many of us, Huei’s passing was an immeasurable loss to the community. In the Memorials section of this newsletter, you will read the thoughts and memories about Huei from many colleagues. Huei’s family is planning an online memorial service to celebrate Huei’s life on December 29, and the registration link is available at <https://tinyurl.com/20221229hueipeng>.

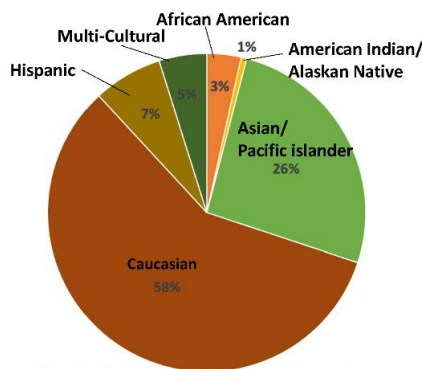
After two years of virtual conferences due to the pandemic, it was so nice and refreshing to see each other in person at the 2022 American Control Conference (ACC) in Atlanta in June, and then more recently in October at the 2022 Modeling, Estimation and Control Conference (MECC) in Jersey City. With the great support from the 2022 MECC Organizing Committee and ASME staff, the Division was able to hold its valued Awards Ceremony at

the conference, including enjoying the 2022 Nyquist Lecture delivered by Professor Reza Moheimani and the 2022 Rufus T. Oldenburger Lecture delivered by Professor Wayne Book. Both ACC and MECC are sponsored by the American Automatic Control Council (AACC), a federation of nine professional societies including ASME. I am pleased to see that, aside from ACC, MECC is becoming a viable venue for our division’s gatherings, in particular, the fall meetings and awards ceremonies.

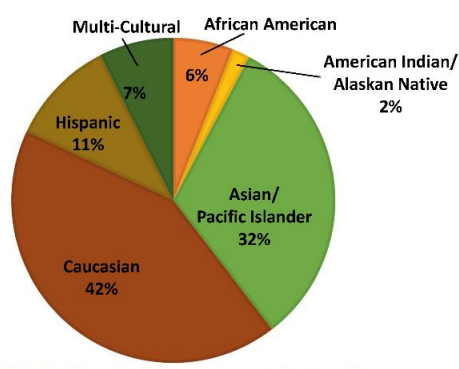
As we go into the new year, I want to take this opportunity to encourage you to participate in the 2023 ACC, to be held in the beautiful city of San Diego on May 31-June 2, as well as the 2023 MECC, to be held at an equally beautiful venue at Lake Tahoe in early October. Speaking of conferences, I would be remiss if I did not also mention the 2023 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM), another conference our division co-sponsors, to be held in the great city of Seattle at the end of June.

The DSCD Podcast Series

<https://www.youtube.com/@asmedscd9507> has recently released its 18th episode. Started during the peak of the pandemic, the Podcast Series was initially established to facilitate better communication and build a closer community when in-person interactions grinded to a halt. Like many other virtual tools and platforms created and thriving in response to the pandemic, we realize the value of our podcast program in connecting people beyond the reach of in-person interactions, and thus the need to continue and improve it in the post-pandemic era. I want to thank our podcast producers, Dr. Hao Su, Dr. Yao Ma, Dr. Selina Pan, and Dr. Bryan Maldonado, for their great work. If you are interested in volunteering or have ideas to



Distribution of ethnicity among all members



Distribution of ethnicity among student members

Ethnicity demographics for DSCD members who have disclosed their ethnicity (source: ASME; credit for plots: Professor Kam Leang and Chantel Lapins, University of Utah).

make our Podcast Series better, please do not hesitate to reach out to us.

Earlier this year, the Executive Committee conducted a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis as part of our strategic planning effort. In the coming year we will continue to seek your input via surveys and meetings in shaping the future of DSCD. In particular, advancing diversity, equity, and inclusion (DEI) has been identified as one of the top priorities of our division, as it holds the key to attracting vital talent, fostering innovation, and building a vibrant community. The current demographics of our division leaves much to be desired: Among division members who have disclosed their gender in the ASME database, the ratio of women to men is 1:12. Interestingly, the same ratio when restricted to our student members, who accounts for 21% of our membership, is 1:6. The population of student members also shows higher ethnical diversity than the entire DSCD population, as shown in the charts below. All these data point to the importance of recruiting and retaining diverse young members, the future of our division. The Division has traditionally taken supporting student members as a priority, for example, by providing student travel grants for attending DSCD-sponsored conferences. We need additional, innovative approaches to inspire and engage young members throughout their career. Considering that students will be pursuing different career paths upon graduation (with only a small percentage staying in

academia), we should strive to make our division an attractive and welcoming community for professionals from different sectors, including but not limited to academia, industry, government, national labs, and non-profits. The latter would also resonate with our goal in inclusion.

Our SWOT analysis also concludes that we should further advance our thriving interactions with other professional organizations, to elevate the quality of our conferences and journals and deliver more value to our members and the broader community. We are currently exploring a framework of collaboration between AACC-sponsored conferences (ACC and MECC) and division-sponsored journals (for example, the relatively young ASME Letters in Dynamics and Control), where conference submissions can be simultaneously considered for the journal publication. A pilot run could be as early as the next MECC.

Finally, 2023 will mark the 80th anniversary of DSCD. We are planning to organize a series of activities to acknowledge, celebrate, and remember the achievements of the Division and our members, identify critical challenges and opportunities of today, and explore roadmaps for decades to come. Please stay tuned—your volunteering and ideas will be much needed.

I wish everyone a happy, relaxing, and healthy holiday season!

DSCD ExComm Updates

Kam K. Leang

New ASME Fellows (July 2021-October 2022)

The DSCD would like to congratulate the most recent advancement of our members to Fellow of ASME:

- Prasad Akella
- Pinhas Ben-Tzvi, Virginia Tech
- Alan Bowling, Univ of Texas at Arlington
- Francesco Bullo, UC Santa Barbara
- Mark Campbell, Cornell University
- Brendan Chan
- DR Manuel Collet, CNRS LTDS
- George Haller
- Tetsuya Iwasaki, UCLA
- S.O. Reza Moheimani, Univ. of Texas at Dallas
- Michael Murphy
- Brian Olson, Johns Hopkins Univ
- Giorgio Rizzoni, The Ohio State University
- Nabil Simaan
- Tony Schmitz
- Stephen Spottswood
- Pablo Tarazaga, Texas A & M University
- Ya Wang, Texas A&M University
- Qingsong Xu, University of Macau

Acknowledgement of Service to DSCD

Special service to DSCD:

Jordan Berg: Executive Committee Chair (2021-2022)

Tsu-Chin Tsao: Honors Committee (2019-2022)

George Chiu: Honors Committee (2019-2022)

Kim Stelson: Honors Committee (2016-2022)

Rama Yedavalli: Honors Committee (2016-2022)

Peter Meckl: Advisory Committee (2018-2022)

Nicole Abaid: DSCD Student Travel Grant Coordinator (2019-2022)

Qian Wang: CEB Chair (2019-2022)

Journal of Dynamic Systems, Measure. and Control
Associate Editors completing their terms in 2022:

Shorya Awtar, University of Michigan

Hanz Richter, Cleveland State University

Mo Rastgaar, Purdue University

Yunjun Xu, University of Florida

Richard Bearee, Arts et Metiers

Chuangfeng Wang, Georgia Tech

ASME Letters in Dynamic Systems and Control Associate
Editors completing their terms (Member of ASME):

Jordan Berg (2019-2022)

Warren White (2019-2021)

Thank you all for your service!

Acknowledgement of Prof. Huei Peng's Service to DSCD

The tragic passing of **Prof. Huei Peng** saddened the community. His generous service to DSCD will be remembered forever. Prof. Peng started to serve on the Honors and Awards Committee in 2021. He served on the Bylaws Committee between 2010-2016. He got back on that again in 2021, and his term was suppose to go to 2024. He served on other DSCD Committees in the past,

including the Advisory Committee (2013-2017), the Nominating Committee (2013-2017), the DSCC Steering Committee (2014) when DSCC was still around, DSCC Conference Representative (2002-2003), and he was on the DSCD Executive Committee, starting as Secretary in 2004, then serving as Chair in 2012-2013. We are deeply grateful to Prof. Peng's selfless service!

Awards and Honors

DSCD Awards 2022



2022 Rufus T. Oldenburger Medalist

Wayne Book

HUSCO/Ramirez Professor (emeritus), George W. Woodruff School of Mechanical Engineering at Georgia Tech

Citation: For pioneering and fundamental contributions to analysis and control of lightweight, flexible manipulators, and subsequent deployment of lightweight manipulators in space, defense, and industry as well as contributions to control and robotics education.

Lecture title: "Strong, Swift Arms on a Diet"



2022 Henry M. Paynter Outstanding Investigator Award

Dawn M. Tilbury

Professor, Ronald D. and Regina C. McNeil Department
Chair of Robotics, University of Michigan at Ann-Arbor

Citation: For pioneering the application of deterministic feedback control to computing and networked controlled systems in industries and factories; ground-breaking and enabling research on the control of large-scale flexible manufacturing systems and the use of "digital twins;" and for pioneering research on motion planning for nonholonomic systems like cars with trailers.

<https://me.engin.umich.edu/news-events/news/dawn-tilbury-receives-asme-dscd-2022-henry-m-paynter-outstanding-investigator-award>



2022 Charles Stark Draper Innovative Practice Award

Rajesh Rajamani

Benjamin Y.H. Liu / TSI Applied Technology Chair,
Mechanical Engineering, University of Minnesota

Citation: For fundamental and enabling research in observer design techniques for nonlinear systems, fault diagnostics, and failure handling; and their application to

the design of estimation algorithms, controllers, and innovative sensors for smart and autonomous systems.

<https://cse.umn.edu/me/news/asme-charles-stark-draper-innovative-practice-award-goes-rajesh-rajamani>



2022 Michael J. Rabins Leadership Award

Nader Jalili

Professor and Head, Department of Mechanical Engineering, The University of Alabama

Citation: In recognition for his numerous and significant journal-editing and conference organizing contributions to the DSCD of ASME; his leadership in creating and chairing the DSCD Vibration and Control of Smart Structures Technical Committee; and inspiring academic and teaching leadership in Mechanical Engineering at Northeastern University and The University of Alabama.

<https://news.eng.ua.edu/2022/11/jalili-receives-prestigious-leadership-award-from-asme>



2022 Nyquist Lecturer

Reza Moheimani

Professor and James Von Ehr Distinguished Chair, Department of Systems Engineering, University of Texas at Dallas

Lecture title: “Control of Scanning Tunneling Microscope for Silicon Quantum Device Fabrication: Mechatronics at the Atomic Scale”

<https://engineering.utdallas.edu/pulsar/moheimani-double-honors/index.html>

2022 Rudolf Kalman Best Paper Award

“Real-Time Planning and Nonlinear Control for Quadrupedal Locomotion with Articulated Tails,” by **Randall T. Fawcett, Abhishek Pandala, Jeeseop Kim and Kaveh Akbari Hamed**, Mechanical Engineering Virginia Tech, Blacksburg, VA 24061. Paper DS-20-1377 of the ASME Journal of Dynamic Systems, Measurements and Control. Published in July 2021, 143(7).

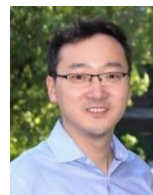
More Colleagues Won Great Awards!



Dr. Reza Moheimani received the IFAC Industrial Achievement Award, for “control developments in support of the fabrication of quantum silicon devices at the single atom scale”. The award recognizes on-going research efforts in his lab which aim to develop control methods and technologies for atomically precise manufacturing of silicon quantum devices based on hydrogen depassivation lithography. The research was funded by DARPA, DOE and UT-Dallas and involved extensive collaborations with an industrial partner. The award is an IFAC major award that is given to an individual, or a team of individuals, who has made a significant contribution to industrial applications of control in a technical field covered by IFAC. Please visit <https://engineering.utdallas.edu/pulsar/moheimani-double-honors/index.html> for more.



Dr. Miroslav Krstic received the inaugural IFAC Technical Committee 2.6 Award on Control of Distributed Parameter Systems during the IFAC Workshop on Control of Systems Governed by Partial Differential Equations in Kiel, Germany. The award – triennial and in memory of Ruth Curtain – recognizes his outstanding contributions in the field of control of distributed parameter systems.



Dr. Ye Zhao was announced as one of 25 recipients of the 2023 Office of Naval Research’s (ONR) Young Investigator Award. Zhao is currently an Assistant

Professor at The George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology. The ONR's Young Investigator Program targets early-career scientists whose research carries significant potential for technological advancement and national defense support. Zhao's proposal, selected out of a pool of nearly 200 applicants, aims to dramatically improve the way autonomous robots make sense of and navigate complex and fast-changing environments. Particularly, his proposal targets naval search and rescue scenarios, where a robot would need to work in confined maritime spaces with or near humans. This calls for a design that is both strong enough to withstand hazardous environments and safe enough to be deployed near humans. To do this, Zhao will design a series of advanced algorithms that will allow a contact-sensing-rich humanoid robot to sense and safely navigate its environment. Zhao's proposal is part of the ONR's Human Interaction with Autonomous Systems program, which seeks to develop autonomous systems that can work alongside humans and other robots. This closely mirrors Zhao's long-term career goals.



Dr. Simona Onori, along with her student **Anirudh Allam**, received the 2021 IEEE Transactions on Control Systems Technology Outstanding Paper Award, for "Online Capacity Estimation for Lithium-Ion Battery Cells via an Electrochemical Model-Based Adaptive Interconnected Observer", in the IEEE Transaction on Control Systems Technology, Vol. 29, No. 04, pages 1636-1651, July 2021. As quoted on the plaque, "this award recognizes the paper's originality, relevance of the application, clarity of exposition, and demonstrated impact on control systems technology". The award was presented during the CSS Awards Ceremony at the 2022 IEEE Conference on Decision and Control.



Dr. Carrie Hall received a Fulbright Scholar Award to collaborate with researchers at Lancaster University on a project focused on harvesting wave energy as a renewable energy source. More information is available at <https://www.iit.edu/news/harnessing-wave-energy-associate-professor-carrie-hall-named-fulbright-scholar>.

New Faces Spotlight

Donald Docimo



Donald Docimo is an assistant professor in the Department of Mechanical Engineering at Texas Tech University. From 2017 to 2019, he was a postdoctoral research associate at the University of Illinois Urbana-Champaign. He received a B.S. degree from the College of New Jersey in 2012, and his M.S. and Ph.D. degrees from the Pennsylvania State University, University Park, in 2015 and 2017, respectively.

At Texas Tech, Donald leads the [Design Optimization and Control Lab](#). The group emphasizes the use of model reduction, optimal control, and design optimization techniques to improve heterogeneous energy systems.

This includes the development of novel balancing methods to extend battery pack lifespan, control co-design (CCD) for multi-domain dynamics found in electric vehicle (EV) powertrains, and hierarchical control for power grid systems. Outside of work, Donald enjoys exercising and is an active runner.

Tanushree Roy



Tanushree Roy joined the Department of Mechanical Engineering at Texas Tech University as an Assistant Professor in Fall 2022. Her research goal is to build a resilient future for human-centric smart cities. The high-level goal of such smart cities is to provide better value of services by optimally using the available resources, minimizing the operational cost, maximizing the safety

and security, and improving quality of life. Her current research is focused on the resilience of socio-technical systems, such as smart transportation and energy storage systems. She combines control theoretic techniques, mathematical modeling, and machine learning to ensure the safety and the cybersecurity of such human-centric smart city infrastructures.

Tanushree received her Ph.D. in mechanical engineering from The Pennsylvania State University in the year of 2022. Previously, she has also received the M.S. degree in Mathematics from University of Central Florida in 2015 and the M.E. degree in Electrical Engineering from the Indian Institute of Engineering Science and Technology (IEST), Shibpur, India in 2011. Between 2011-13, she worked as a Research Consultant for Indian Institute of Technology (IIT), Kharagpur.

Outside of her work, she enjoys sci-fiction, and occasionally dabbles in art and calligraphy.

Yongsoon Yoon



Yongsoon Yoon joined the Mechanical Engineering Department at the Oakland University in Michigan as an assistant professor in August 2020, where he directs the [Controls and Diagnostics Lab](#) (CDL). Prior to joining the OU, he was a technical specialist in advanced controls and diagnostics research at the Cummins Inc. Corporate Research & Technology in Columbus, Indiana from 2015 through 2020. He received his PhD in Mechanical Engineering from the University of Minnesota, Minneapolis in 2015, and M.S. and B.S. both in Mechanical and Aerospace Engineering from the Seoul National University, Seoul, S. Korea in 2006 and 2008, respectively. He was an engine management system (EMS) engineer at the Continental Automotive Systems in Icheon, S. Korea from 2007 through 2011. In CDL, Dr. Yoon and his students have been developing advanced controls and diagnostics of transportation propulsion systems to improve energy efficiency and reliability over lifetime using control theory and component- and system-level understanding of physical systems. Applications of interest are internal combustion engines and electric-hydraulic hybrid powertrain, mainly for heavy-duty applications where high performance and long durability are demanded.

Dr. Yoon is a member of ASME and SAE and a senior member of IEEE. In his free time, Dr. Yoon likes to spend time with his lovely three kids, Susie, Eugene and Jason while reading books to them and walking in the near park.

Junfeng Zhao



Junfeng Zhao joined Arizona State University as a Tenure-Track Assistant Professor in August 2022. Before joining Fulton School of Engineering at ASU, Dr. Zhao worked at General Motors R&D for six years. He received his Ph.D. degree from The Ohio State University in 2015 (OSU Presidential Fellowship recipient), his M.S. degree from the University of British Columbia in 2009, and his B.S. degree from Tsinghua University in 2007. He has authored 20+ journal and conference papers and holds 10+ patents. Dr. Zhao served as associate editor for the ASME Dynamic Systems and Control Conference (DSCC) in 2016. He has been an invited session organizer for the American Control Conference (ACC) since 2018, and Modeling, Estimation and Control Conference (MECC) since 2022.

His research interests include connected and automated vehicles (CAV), CAV simulation and system integration, motion planning and controls, electrified propulsion systems, and intelligent transportation systems. At ASU, he will lead the new [Battery Electric and Intelligent Vehicle, or BELIV, Lab](#). BELIV lab will establish a multidisciplinary research program driven to advance the development of safe, clean, and energy-efficient intelligent vehicles and transportation technologies.

He loves traveling, hiking, and road trips. He is passionate about automotive technologies, which have shaped people's lives over the past century. He is also eager to see how future mobility may change the world.

Lei Zhou



Lei Zhou is an Assistant Professor in the Walker Department of Mechanical Engineering the University of Texas at Austin. Lei received her Ph.D. in Mechanical Engineering from Massachusetts Institute of Technology

(MIT) in 2019. She also holds an M.S. (2014) in Mechanical Engineering from MIT and a B.E. (2012) in Control and Instrumentation Engineering from Tsinghua University. Prior to joining UT Austin, Lei has worked as a Visiting Research Scientist at the Mitsubishi Electric Research Laboratories during 2019-2020.

At the University of Texas at Austin, Lei directs the [Precision Mechatronics and Control Lab](#) (PMCL). Her research focuses on developing novel and high-performance mechatronic solutions through exploiting the synergy between machine design, electric machines

and drives, control, and learning algorithms, thereby broadly impact applications such as manufacturing and robotic systems. Her current research projects including control co-design of over-actuated lightweight nanopositioning systems for high-throughput chip manufacturing, high-strength and transparent actuation and proprioceptive sensing for interactive robots, and the design and control of soft-robotic stamp transfer system for wafer-scale 2D electronics manufacturing.

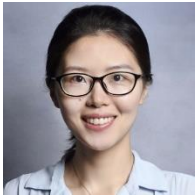
Outside of work, Lei is also an amateur watercolor artist, enthusiastic trail runner, and a loving cat owner.

Interview with Recent NSF CAREER Awardees

Two recent NSF CAREER awardees discuss their research, CAREER proposal preparation experience, and career suggestions for junior faculty. We celebrate their and other awardees' achievements.

Yan Gu

Purdue University



Q: Congratulations on your recently awarded CAREER project! Can you please introduce it to our readers?

A: Thank you so much for your warm note! My NSF CAREER project is about creating new state estimation and control methods that enable legged robots to reliably walk on nonstationary surfaces, such as moving public transportation vehicles. Legged robots move around by making and breaking contact with the ground. Thanks to this unique form of locomotion, they could negotiate difficult terrains that are overly challenging for tracked or wheeled robots, such as narrow passageways, stairs, and ladders. Legged robots capable of reliably traversing nonstationary platforms can be used to perform various high-risk real-world tasks, such as firefighting and fire suppression, inspection, maintenance, surveillance, and disinfection on moving ships, oil platforms, trains, and aircraft. Yet, the existing control approaches of legged locomotion typically assume a static ground and thus may not be effective in handling locomotion during significant platform motion. Addressing the control problem of legged locomotion on a moving platform is fundamentally challenging due to the associated time-varying robot dynamics. To achieve provably stable walking on a nonstationary surface, my students and I are deriving new methods of robot state

estimation and control by explicitly handling the time-varying, hybrid, and nonlinear robot dynamics.

Q: What are your suggestions on how to prepare a successful CAREER proposal?

A: Hearing feedback from colleagues with various backgrounds was extremely useful for my CAREER proposal preparation. I talked about my proposal idea with several program officers and received critical and constructive comments on the impact and scope of the idea. I also had many informal and formal conversations about my proposal with colleagues from robotics, mechanical engineering, electrical engineering, and computer science. Their comments and suggestions helped me thoroughly identify many of my blind spots in technical ideas and proposal writing.

Q: What are the most exciting research challenges and opportunities in your research fields?

A: Besides legged locomotion on nonstationary platforms, one opportunity that I feel particularly excited about is to lower the cost of adult-sized legged humanoid robots. Commercial legged humanoid robot platforms have been rapidly and steadily advancing in terms of their functionalities and reliability, and as a researcher who has primarily been working on algorithms derivation instead of mechanisms design, I feel grateful that my group can obtain access to these wonderful research platforms. Still, a lower price tag of large-sized legged humanoid robots could open the door for a significantly larger number of researchers from various fields beyond robot controls to work on humanoid robots, thus helping to substantially accelerate the research progress of humanoid robotics.

Q: Can you please describe your career up to date?

A: My career has been devoted to legged locomotion control. I obtained a B.S. degree in mechanical engineering from Zhejiang University (China) in 2011 and completed my Ph.D. degree, also in mechanical engineering, at Purdue University in 2017. I studied bipedal robot control under the co-advising of Dr. Bin Yao and Dr. C. S. George Lee at Purdue University. I joined the faculty of the Department of Mechanical Engineering at the University of Massachusetts Lowell in 2017 and moved to the School of Mechanical Engineering at Purdue in 2022.

Q: It could be challenging to start as a new faculty member. What are your suggestions about how to grow an academic career for new faculty colleagues in our community?

A: Our community is incredibly supportive of new faculty members, and I have been constantly receiving various meaningful support from our community and my previous and current institutions since I became a faculty member. Besides seeking support, I think it is also crucial to learn from and help provide support for our colleagues. I truly enjoy growing and "struggling" together with the other new and junior faculty members in our community and continuously learning from them.

Q. Thank you for your sharing!

A: Thank you for your thought-provoking questions! Happy Holidays!

Matthew Bryant



Q: Congratulations on your recently awarded CAREER project! Can you please introduce it to our readers?

A: Thank you! My CAREER project, titled "Muscle-Inspired Load-Adaptive Actuation for Compliant Robotics" aims to increase robot energy efficiency and performance while simultaneously improving human-robot interaction compatibility and safety through the use of inherently soft actuators. Current robotic actuators are poorly suited to wearable or human-assistive applications because they are inefficient when used in slow, variable-speed motions like moving an arm or leg. In addition, they create human safety hazards due to their stiffness and rigid motions. This research will create a new type of actuator that is inspired by human muscle tissues, which contain thousands of fibers that are selectively recruited to provide only the amount of

force needed for a given task. Engineering artificial muscles to incorporate this concept of selective recruitment will allow the robot to consume less energy, therefore increasing battery life and range. It will also allow the same actuator to generate both gentle, precise motion as well as high-force, high-speed motion, depending on the task, while also incorporating soft construction and controllable stiffness. This new approach will help make assistive robotics safer, more comfortable, and more compatible with human physiology, all of which will provide more rapid and effective recovery for those suffering from debilitating injuries or disabilities. This research lends itself well to outreach opportunities to work with young people who suffer from disabilities; the outreach activities will help inspire them and show them how engineering can be used to improve their lives and the lives of those around them.

Improvements in actuator efficiency and performance can be made by implementing the biologically-inspired concept of orderly recruitment to create an integrated fluidic artificial muscle tissue that contains selectable actuation elements of different sizes. This tissue can dynamically adapt to changes in load by recruiting different combinations of actuators. This orderly recruitment scheme conserves energy by reducing working fluid consumption and minimizing throttling losses. It also allows for a wide gamut of force generation and fast response time due to reduced flow rate demand. The goals of this research are to (1) understand the relationships between recruitment state, pressure, force, contraction, and velocity for selective-recruitment fluidic artificial muscle tissues; (2) establish the effects of topology on performance and create a framework for optimizing tissues to robot operating tasks and requirements; (3) understand implications of recruitment control architecture; and (4) demonstrate bandwidth improvements, variable compliance, and energetic savings on a walking robot platform.

Q: What are your suggestions how to prepare a successful CAREER proposal?

A: On the technical side, my primary suggestions for CAREER applicants are to attempt to (1) cast your research ideas into scientific aims that address fundamental knowledge gaps, (2) articulate well-reasoned approaches for how to address those aims, and (3) propose one or more compelling demonstrations (be they experiment, simulation, etc.) that show the culmination of the work and illustrate the value of the work to the community.

As engineers, often we think of new technologies, methods, or solutions for application-driven problems we would like to see realized. But, in my experience, for NSF

proposals in general and the CAREER program in particular, you really need to identify and address the underlying scientific questions and challenges. I try to force myself to step back and ask: What knowledge gaps prevent me from implementing this idea today? How can I close those knowledge gaps in a rigorous way? And, how can I prove the success of my approach in an exciting (but time/budget feasible) integrated-system demonstration?

On the education and broader impacts side, my advice is to learn about what outreach and education programs already exist on your campus and leverage them to create new activities that build on the unique themes and aspects of your proposed work. If you can plug into an existing outreach pipeline or collaboration to handle the logistics and administration of, for example, a high school summer program, you have more time and resources to focus on creative new content and hands-on activities for the students. In my experience, this is more likely to produce a successful and compelling STEM outreach program than trying to forge an entirely new program from scratch.

My final piece of advice is to try to get feedback from the Program Director about your ideas for a new proposal, or the previous reviews for a resubmission. Write up the one-page project summary, send it to the Program Director for the program you have in mind, and ask for a phone call of meeting to discuss whether your idea is a good fit. Often, they can also offer feedback on whether you have adequately identified the fundamental knowledge gaps and made the novelty and potential impact of your ideas sufficiently clear. In the case of a resubmission, they can also often help give more context to reviewer comments and whether your ideas for revisions are on the right track.

Q: What are the most exciting research challenges and opportunities in your research fields?

A: Over the past decade we have seen tremendous growth in soft actuation and soft robotics that have brought close human-robot interaction nearer to application. However, key challenges remain in balancing force capacity and bandwidth with compliance and safety as well as achieving sufficient energy efficiency to create systems with useful untethered battery endurance. I see these problems and a rich and challenging blend of dynamic systems, structures, mechatronics, and controls.

Q: Can you please describe your career up to date?

A: I received the BS in mechanical engineering from Bucknell University in 2007, followed by the MS in PhD

degrees in mechanical engineering from Cornell University in 2011 and 2012, respectively. My graduate work was advised by Dr. Ephraim Garcia and focused on small-scale piezoelectric energy harvesting devices driven by aeroelastic limit cycle oscillations. After defending my PhD, I continued at Cornell as a lecturer and Intelligence Community Postdoctoral Fellow, which started my work in fluidic artificial muscle actuators for robotics.

I joined North Carolina State University as an Assistant Professor in the fall of 2013 and started the Intelligent Systems and Structures Research Lab (iSSRL). Broadly, my lab works on dynamics, vibrations, and controls with applications to robotics, fluid-structure interactions, renewable energy systems, and unoccupied aerial, underwater, and ground vehicles. I was promoted to Associate Professor with tenure in 2019 and named an NCSU University Faculty Scholar in 2022.

Q: It could be challenging to start as a new faculty member. What are your suggestions about how to grow an academic career for new faculty colleagues of our community?

A: My first suggestion is to think broadly about your technical knowledgebase and research interests, and consider problems beyond your core experiences in your PhD and/or postdoc work. While those experiences can certainly provide jumping off points for your new lab, you should also be looking to apply your fundamentals to new and contemporary problems and applications.

My second suggestion is to try to tap into student enthusiasm and creativity as quickly as possible. Even when you are just starting out and trying to secure your first grant, having a cadre of energetic students – even master's students or undergraduate research volunteers - can stimulate ideas, help generate preliminary data, and test out new directions.

Finally, don't wait until an idea is 'perfect' to submit a proposal. Just the act of putting the proposal together will help you learn more about the topic and force you to organize your thoughts into concrete directions. Involve your students in the proposal-writing process... it benefits their professional development and also helps to vet your ideas by discussing it with them, answering their questions, and thinking of tasks for them to assist with.

Q. Thank you for your sharing!

A: You're very welcome; I appreciate the opportunity.

ASME Letters in Dynamic Systems and Control

Recent Updates

Peter Meckl, Editor-in-Chief, ASME Letters in Dynamic Systems and Control

The October 2022 issue of ALDSC includes a special section that features select papers from the 2022 ASME International Mechanical Engineering Congress and Exhibition (IMECE). In an effort to attract more papers from conferences for the ASME Letters in Dynamic Systems and Control (ALDSC), we reached out to IMECE organizers and requested recommendations for papers to consider for this journal. The idea was to offer those authors the opportunity to publish in a refereed journal while being able to still present their paper at the conference.

With help from IMECE Track Chairs Kostas Karazis and Dumitru Caruntu, we identified candidate IMECE papers and contacted those authors to ask them whether they would be willing to have their paper considered for publication in ALDSC. Those papers that were formally submitted were then reviewed using the standard review process. Out of a total of 10 papers submitted, we accepted four papers, which are included in this issue.

The featured papers cover the gamut from sensor selection for aerospace structural vibration testing to control of a ball-catching robot. The first paper, by a team from Sandia National Laboratories, compares sensor selection techniques that leverage finite element modeling to intelligently place accelerometers to capture the structural dynamics of an aerospace structure. The second paper, by a team from the University of Louisiana at Lafayette, develops an efficient full dynamic model of a non-holonomic omni-wheel robot that allows for a PID control-law to accurately follow arbitrary paths. The third paper, from researchers at Weber State University, develops a robotic ball-catching platform system that uses two onboard cameras to rapidly orient the platform towards the throwing direction. Finally, a paper written by researchers at Arizona State University proposes a new compound fractional sliding mode control and super-twisting control to control a MEMS gyroscope. A new sliding mode surface was defined to design the proposed new sliding mode controller, with the advantage of better tracking performance and robustness against external perturbation.

In addition, three more papers are included in this issue, which were submitted directly to the Letters. The first of these is, “H2 Performance Analysis of Tractors Traveling on Rough Terrain,” written by S. Izumi, R. Hayashida, and X. Xin from Okayama Prefectural University in Japan. The second is, “Mechanism Design and Control of a Winged Hovering Robot With Flapping Angle Constraint,” by H. Vejdani, L. Haji, V. Fernandez, and B. Jawad from Lawrence Technological University. Finally, the third paper is, “Disturbance Modeling and Prediction of Closed-Loop Micro-Actuator Stroke Usage in Dual-Stage Hard Disk Drives,” written by M. Chakraborty and R.J. Caverly from the University of Minnesota.

Below are links for each of these 7 papers, which will provide free access to these papers through the end of February 2023:

“Comparing Instrumentation Selection Techniques for Vibration Testing”: <https://doi.org/10.1115/1.4055765>

“Robust Dynamic Modeling and Trajectory Tracking Controller of a Universal Omni-Wheeled Mobile Robot”: <https://doi.org/10.1115/1.4055690>

“A Novel Platform Orientation System for Proportional-Integral-Derivative-Controlled Ball-Catching Robot”: <https://doi.org/10.1115/1.4055837>

“New Compound Fractional Sliding Mode Control and Super-Twisting Control of a MEMS Gyroscope”: <https://doi.org/10.1115/1.4055878>

“H2 Performance Analysis of Tractors Traveling on Rough Terrain”: <https://doi.org/10.1115/1.4055219>

“Mechanism Design and Control of a Winged Hovering Robot With Flapping Angle Constraint”: <https://doi.org/10.1115/1.4055691>

“Disturbance Modeling and Prediction of Closed-Loop Micro-Actuator Stroke Usage in Dual-Stage Hard Disk Drives”: <https://doi.org/10.1115/1.4056025>

I hope you enjoy this selection of articles from ALDSC, and I encourage you to consider submitting one of your own papers to ALDSC in the near future.

Journal of Autonomous Vehicles and Systems

A New Journal – Consider Collaborating and Submitting Your Paper

Vladimir Vantsevich, Editor-in-Chief, Journal of Autonomous Vehicles and Systems

Autonomy and artificial intelligence have become a distinguishing feature of emerging technologies in many areas of human life. For decades, ASME as a global engineering society with many sister-societies around the world has been dedicating conference proceedings, journal publications, and as well as the ASME Press Robotics Engineering Book Series, to disseminate research and engineering of autonomous vehicles and robots for various applications. The high-level of research interest, confirmed by ASME’s own internal review and market analysis on this topic, revealed that it would be timely to establish a new ASME Journal that focuses on both transformative research and engineering design of autonomous vehicles and systems. Thus, the Journal of Autonomous Vehicles and Systems (JAVS) was established in 2021 with two sponsoring ASME Divisions – Dynamic Systems and Control Division and Design Engineering Division.

The JAVS is a platform for expanding research frontiers and developing innovative approaches to all areas of autonomous vehicle dynamics and autonomous system design to make the vehicles receptive to technological novelties and technological paradigm shifts that could feasibly emerge due to disciplinary convergence of engineering fields and applied technical, natural, and social sciences.

During two years of operation, the JAVS has established a great team of twenty-eight Associate Editors from the U.S. and eight other countries representing academia, industry, and government research agencies who are highly qualified experts in autonomous vehicles for all domains of operation, i.e., ground, water, air, and space. The figure below provides some information about the Associate Editors with their names and affiliations. If you would like to serve as a Reviewer or Associate Editor, you are very welcome to contact us (email is given below in the signature).

The JAVS receives invaluable support from the DSCD Executive Committee, ASME staff, and the JAVS Advisory Board, which includes: Dr. Azim Eskandarian, Department Head and the Nicholas and Rebecca Des Champs Professor at Virginia Tech, Dr. David Gorsich, Chief Scientist, U.S. Army Ground Vehicle Systems Center (GVSC), and Dr. Madhu Raghavan, Group Manager, R&D, General Motors.

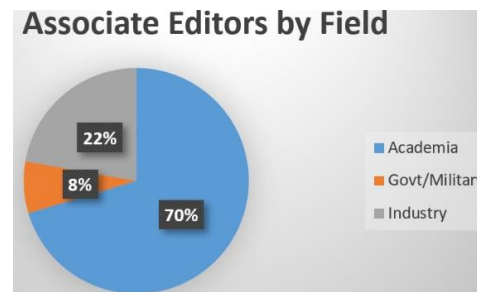
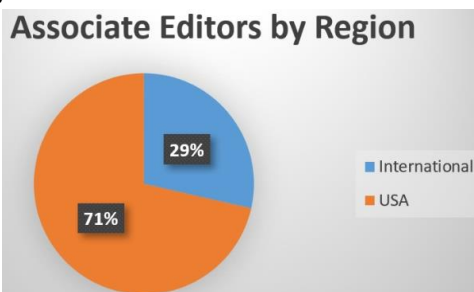
If you would like to join the Advisory Board and thus bring your expertise to further advance the Journal, please contact us.

The JAVS Editorial Team continuously works on the processing time to make the Journal attractive for your consideration. The time from submission to final technical editor decision has significantly decreased from 3.6 months in 2020 to 3.3 months in 2021 and to 2.5 months in the first half of 2022.

Our first Special Issue, “Modeling and Simulation of Autonomous Ground Vehicles” was published in October 2021 by Guest Editors – Dr. D. David Gorsich, Chief Scientist of the U.S. Army GVSC and JAVS Associate Editor, and Dr. Bogdan Epureanu, Professor and Director of the Automotive Research Center at the University of Michigan.

We have officially launched a second special issue, “Special Issue on Quantum Engineering for Autonomous Vehicles,” with Guest Editors Drs. Farbod Khoshnoud, Marco B. Quadrelli, D. David Gorsich, and Vladimir Vantsevich. Please consider submitting your paper if you work in this R&D field.

As the Journal continues to make progress and grow its population of authors, reviewers, and readers, we will continue to reach out to the DCSD Members inviting you to submit manuscripts, review papers, and serve as associate editors.



Report on MECC 2022

Qingze Zou and Xu Chen

The 2nd Modeling, Estimation, and Control Conference (MECC 2022) took place on October 2-5 2022 at Westin Hotel, Jersey City, New Jersey, USA. The first in-person meeting of this newly established conference series, MECC 2022 was mainly sponsored by the IFAC technical committees in Mechatronic Systems (TC 4.2) and Control Education (TC 9.4). The conference attracted 264 participants from 12 countries.

Qingze Zou (Rutgers University, NJ, USA) served as the NOC General Chair, and Tom Oomen (Eindhoven University of Technology, Eindhoven, Netherlands) served as the IPC Chair. Xu Chen (University of Washington, WA, USA) serves as the NOC Vice Chair, Cedric Clevy (Bourgogne Franche-Comté

University, France) and Jason Rhee (General Motors Inc., Michigan, USA) are the IPC Vice Chairs, and Qian Wang (Pennsylvania State University, PA, USA) serves as the Editor. Ellen Yi Mazumdar (Georgia Institute of Technology, GA, USA) served as the Students and Young members Chair, and Cong Wang (New Jersey Institute of Technology, NJ, USA) was responsible for local arrangements. The Organizing Committee and all MECC2022 participants are grateful to the members of the Editorial Board and IPC for handling the reviews of 201 submitted manuscripts, abstracts and posters. We are also grateful to Siemens Inc. (Gold), Rutgers University (Silver), University of Washington (Silver), and Processes Publication Inc. (Bronze), for their generous sponsorship.

The technical program of MECC 2022 comprised 129 peer-reviewed contributed papers, 49 abstracts of articles published in IFAC-affiliated journals last year, and 17 poster presentations. As in MECC2021, the technical program featured 3 plenary lectures, 8 invited sessions, 16 contributed sessions, 12 special sessions, 2 tutorial sessions, one rapid-fire poster presentation session, and poster presentations on each day of the conference (October 3rd-5th). We are particularly excited to have three distinguished scholars representing three generations to deliver the plenary talks (in chronological order):

1. Masayoshi Tomizuka (UC Berkeley): Exploration in the Forest of Mechanical Systems Control
2. Jing Sun (University of Michigan): Exploration in the Forest of Mechanical Systems Control
3. Aaron Dollar (Yale University): Exploration in the Forest of Mechanical Systems Control

The conference also provided a platform for the Dynamic Systems and Control Division (DSCD) of ASME to conduct its societal functions, including the following the following lectures given by the two winners of ASME Rufus T. Oldenburger Medal and the Nyquist Lecturer:

1. Wayne Book (GeorgiaTech, emeritus): Rufus T. Oldenburger Lecture: Strong, Swift Arms on a Diet
2. Reza Moheimani (Univ. of Texas, Dallas): Nyquist Lecture: Control of Scanning Tunneling Microscope for Silicon Quantum Device Fabrication: Mechatronics at the Atomic Scale.

A variety of activities were organized and hosted for students and young members of the community during the MECC2022 conference. The best student paper competition attracted 18 applications internationally, and top 6 finalists were invited to present their work in front of a panel consisting of five professors. Closing-to-graduation Ph.D. students and Postdocs were invited to participate the newly-created ASME DSCD Rising Stars Invited Talks, and 29 applications were accepted and grouped into five sessions covering Robotics, Automotive, Vibrations & Energy, Mechatronics, and Biomedical Engineering. A Careers in Academia Panel was organized with four young Professors sharing their experience with the students. The conference also provided partial travel support to 73 students through the generous funding from AACC and ASME-DSCD.

The conference also featured a series of special sessions and tutorial sessions to promote interactions with funding agencies and industrial companies. Program Directors from National Science Foundation (NSF) and Air

Force Office of Scientific Research (AFOSR) were invited to present one in-person and one remote/online funding agency talks during the conference, and one special session on New Advances in Systems and Control from the recent DSCD Career Awardees. Two special sessions towards control application in industrial were organized by both Industrial researchers (on “Industry Stories in Controls”) and academia scholars (on “Toward Dynamic Learning and Decision Making Using Artificial Intelligence in Manufacturing Systems”) were organized as well. This has been complemented with two tutorial sessions on “Modelling, Estimation, and Control for Single Molecule Investigation” and “Control and Testing of Connected and Automated Vehicles”.



The conference also offers ample social events for networking and communication. Starting with the opening reception in the evening eve of the first day, the conference hosted the ASME-DSCD general meeting on

the first night (of which a large portion of the attendees participated), and the conference banquet on the noon of the second day. Finally, the conference was concluded with a sushi and seafood bar on the third day afternoon.

2023 IEEE/ASME International Conference on Advanced Intelligent Mechatronics

Qingze Zou

The 2023 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM2023) will be held on June 28-30, 2023 in Seattle, WA, USA (<https://aim2023.org/>). As the flagship conference on mechatronics and intelligent systems, AIM 2023 will bring together the international mechatronics community to discuss cutting-edge research results, expert perspectives on future developments, and innovative applications in mechatronics, robotics, automation, industrial electronics, and related areas.

You are cordially invited to submit your original work in the following but not limited to topics: Actuators, Automotive Systems, Bioengineering, Data Storage Systems, Electronic Packaging, Fault Diagnosis, Human-Machine interfaces, Human-Robot Interaction and Collaboration, Human Factors in Mechatronics Systems, Industry Applications, Information Technology, Intelligent Systems, Machine Vision, Manufacturing, Micro Electro-Mechanical Systems, Micro/Nano Technology, Modeling and Design, System Identification

and Adaptive Control, Motion Control, Vibration and Noise Control, Neural and Fuzzy Control, Opto-Electronic Systems, Optomechanics, Prototyping, Real-Time and Hardware-in-the-Loop Simulation, Robotics, Sensors, System Integration, Transportation Systems, Smart Materials and Structures, Energy Harvesting, and other frontier fields.

Submissions are also called for the Fourth Edition of Focused Section (FS) on TMECH/AIM Emerging Topics. This Focused Section is intended to expedite publication of novel and significant research results, technology and/or conceptual breakthroughs of emerging topics within the scopes of TMECH (www.ieee-asme-mechatronics.org), providing rapid access to the state-of-the-art of TMECH publications to the mechatronics community.

Please visit our website (<http://www.aim2023.org>) and particularly, the “contributing” webpage for more details.

New Book: PDE Control of String-Actuated Motion



By Ji Wang and Miroslav Krstic

This book is about “new adaptive and event-triggered control designs with concrete applications in undersea construction, offshore drilling, and cable elevators”.

Series: Princeton Series in Applied Mathematics

ISBN: 9780691233499

<https://press.princeton.edu/books/paperback/9780691233499/pde-control-of-string-actuated-motion>

Positions

Faculty Position at Utah Valley University

The Department of Engineering (<https://uvu.edu/engineering>) at Utah Valley University invites applicants for a tenure track Assistant/Associate Professor in Mechanical Engineering with a focus in controls, robotics, mechatronics, system dynamics or closely related areas to begin Fall 2023. This position primarily teaches undergraduate mechanical engineering courses; creates instructional materials; develops new courses; directs course and capstone projects; performs service for the department, college and university; and is actively engaged in research and scholarly work. Applications are currently being reviewed as they are received through November 10th. Applicants should submit a letter of application addressing qualifications along with a CV, Teaching Philosophy, Research Statement, and names, telephone numbers, and email addresses of five references to <https://www.schooljobs.com/careers/uvu/Faculty/jobs/3805827/faculty-assistant-professor-mechanical-engineering-in-controls-robotics-mecha?pagetype=jobOpportunitiesJobs>

Utah Valley University is the largest public university in Utah, and one of a few in the nation offering a dual-mission model that combines the rigor and richness of a first-rate teaching university with the openness and vocational programs of a community college. The unique model, which focuses on student success, engaged learning, rigorous academic programs, and faculty-mentored research, is transforming higher education by making it more affordable and accessible to students of all backgrounds.

The Engineering department at UVU is relatively new, but has experienced considerable growth the past couple years. As a result the Mechanical and Civil Engineering Programs will be establishing their own department as we look forward to the opening of a brand new, 180,000+ sq ft Engineering building set to open Fall 2025. Overall, Utah Valley University places a strong emphasis on teaching. Faculty members are expected to develop a

learning environment and activities that help students achieve their learning objectives. UVU is committed to fostering and preserving a culture of diversity, equity, and inclusion (DEI). We recognize the need to develop a diverse and inclusive faculty, staff, and student body and encourage applicants with a wide range of backgrounds, experiences, and expertise to apply.

You are welcome to reach out to me at matt.jensen@uvu.edu with any questions regarding this open position.

Multiple Faculty Positions at Rutgers University

There are multiple faculty positions in the Department of Mechanical & Aerospace Engineering at Rutgers University. Please refer to the attached job flyers.

Software Development Researcher for M&S of Unmanned Off-road Vehicles

A postdoc position to start immediately is available in the Engineering and Innovative Technology Development Group at the University of Alabama at Birmingham to design and implement a real-time computational co-simulation environment for a distributed modeling and simulation of unmanned off-road vehicles. This position relates to ongoing research projects funded by the US Army Ground Vehicle Systems Center in conjunction with collaborative applied research pursued by the NATO AVT-341 Committee on Mobility Assessment Methods and Tools for Autonomous Military Ground Systems.

Selection for participation in this project will provide an excellent opportunity to work with a wide range of cutting-edge commercial M&S software, modular autonomy components, and off-road vehicle and terrain computational models. The postdoc will also be working with domestic and international teams of researchers from both academia and industry, to collaboratively develop and deploy enabling software technologies for the US Army's Next Generation Combat Vehicle program. More detail at <https://www.uab.edu/postdocs/prospective-postdocs/available-positions/k220301>

In Memoriam of Prof. Huei Peng

Obituary

Huei Peng

Roger L. McCarthy Professor of Mechanical Engineering
University of Michigan, Ann Arbor
1962-2022



Huei Peng, Roger L. McCarthy Professor of Mechanical Engineering, passed away on November 18, 2022, in his sleep at 60 years of age.

Professor Peng was best known for vehicle active safety and control of electrified powertrains. He joined the University of Michigan, Ann Arbor

faculty in 1994 and made significant contributions to an array of dynamic systems and control problems, in particular, in the field of intelligent, autonomous, connected, and electrified vehicles focusing on adaptive and optimal control methodologies. Between 2016 and 2021, he served as the Director of MCity, which studies connected and autonomous vehicle technologies and promotes their deployment. Under his leadership, MCity grew from a test facility to a full-fledged research collaboration with public, private and academic partners. He supervised more than 65 research projects with multi-university participation, such as the Clean Energy Research Center—Clean Vehicle Consortium and the Department of Energy educational award on electrified transportation. According to Research.com, he was among the 25 Top Mechanical and Aerospace Engineering Scientists in the United States. Peng made significant and lasting impact on the education experience of students in continuing education as the Program Director of the Automotive Engineering and the Global Automotive and Manufacturing Engineering degree programs and Executive Director of InterPro that laid critical portions of the foundation of the Integrative Systems + Design division.

Peng completed his bachelor's degree in mechanical engineering at the National Taiwan University in 1984, his master's degree in mechanical engineering at the Pennsylvania State University in 1988, and his doctorate in mechanical engineering at the University of California at Berkeley in 1992. Peng was a dedicated teacher and a

leader both on campus and beyond. He was a devoted advisor and mentored many students and colleagues. He graduated 45 Ph.D. students, many of whom are well-known in academia and industry. He received numerous honors during his lifetime, most notably the 2019 American Society of Mechanical Engineers (ASME) Rufus Oldenburger Medal, which recognizes significant contributions and outstanding achievements in the field of automatic control. Other honors include the ASME Dynamic Systems and Control Division's 2019 Yasundo Takahashi Education Award, the 2016 Michael J. Rabin's Leadership Award, the 2018 Nyquist Lecture, the Alliance for Automotive Innovation's inaugural Autos 2050 Innovation Award. He also received Best Paper Award from the ASME Automotive and Transportation Technical Committee in 2013 and the International Symposium on Advanced Vehicle Control in 2018, 2010, and 2004. Peng received the University of Michigan College of Engineering's David E. Little Research Excellence Award in 2014 and the Vulcans Education Excellence Award in 2015. He is a Fellow of the ASME and the Society of Automotive Engineers.

Peng wrote and edited four books, Dynamic Analysis and Control System Design of Automotive Transmissions, Automotive Control Systems, Control of Fuel Cell Power Systems – Principles, Modeling, Analysis, and Feedback Design, and the ASME Proceedings on Advanced Automotive Technologies. He published more than 300 technical publications, including 167 in referred journals and transactions. One of his proudest achievements was that more than half of his Ph.D. students have each published at least one paper cited more than 100 times. He believed in setting high expectations and helping students to exceed them by selecting innovative research topics with high impact.

His colleagues remember Peng as an accomplished scholar, a visionary leader and administrator, and a kind and generous friend. U-M College of Engineering, Dean Alec Galimore, stated, "Huei's dedication and work in the Mechanical Engineering department and at MCity over the last 30 years were unparalleled, and he always had such a kind presence about him. He will be dearly

missed.” One of his students shared, “not only was he a great teacher, but he also had a very quiet and subtle witticism. I remember he would crack us all up in every class with a subtle one-liner...”

Huei Peng, a dear friend and colleague of many is survived by his wife, Hueichun, and two daughters, Lauren and Valerie.

Memorial Tributes to Prof. Huei Peng

Tributes, respects, and reflections shared by colleagues and collected online

A colleague we will all miss.

Wayne J Book, Georgia Institute of Technology

My memories of working, traveling, and meeting together with Professor Huei Peng in the past fifteen years are still vivid and forever enjoyable. As a leading scholar in the field of automotive systems, Professor Peng has made a valuable and profound influence on me and many others. Professor Peng will be remembered as a terrific mentor and dear colleague along with his sagacity and humor. May he rest in peace.

Junmin Wang, University of Texas at Austin

Prof. Huei Peng was a great researcher and a teacher in controls systems and applications. His contributions to controls community and automotive industry were significant and will have major impacts in advancing these technologies. I met Dr. Peng during one of the controls conferences and enjoyed talking to him. This is a big loss for the community, and I wish peace for his family.

Ali Borhan, Cummins Inc.

I'm incredibly saddened to hear about Prof. Huei Peng's passing. My heart goes out to his wife and children. He leaves behind a beautiful and talented family. Professor Peng was an incredible teacher, mentor, and friend. As a PhD student at UC Berkeley PATH, he was instrumental in the automated highway platooning experiments. At the University of Michigan, Prof. Peng was an incredible leader, visionary, and teacher to thousands of students. Although he left us early, his legacy will last a very long time.

I have countless fond memories of interactions with Prof. Peng, ranging from machine learning, nonlinear controls, critical career choices, international collaborations, and building research centers. He was never afraid to share sharp opinions, a few of which I resisted but have come to more deeply understand over time. It's honestly a cruel twist of fate that we cannot benefit further from his wisdom and smile. He loved his research. He deeply cared for his students and colleagues. And he loved the University of Michigan. Professor Peng - we love you deeply! We miss you! But we will carry your memory,

teachings, and leadership into the future - to create a better tomorrow for us all!

Scott Moura, UC Berkeley

Even as the shock of Professor Huei Peng's passing subsides with the passing days, the loss is deep. For his family, immeasurable. For our community, it is both a loss of a powerhouse researcher, a pioneer of many vehicle technologies, an exemplar of control research with industrial and societal impact, and a loss of a selfless colleague who has given so much to the ASME Dynamic Systems and Control Division and in many leadership roles at University of Michigan. Huei will be dearly remembered and admired.

Miroslav Krstic, University of California, San Diego

Huei Peng joined my research group in 1988 after completing his MS at PennState. At that time UC Berkeley was starting the California PATH (Partners on Advanced Transit and Highways). I was extremely lucky to have him as the first graduate student researcher on vehicle lateral control for Automated Highway Systems (AHS). His PhD research on this subject covered modeling of vehicles for AHS and the frequency shaped optimal preview control and was a significant contribution to the success of the PATH program. His thesis was the bible for my other students who worked on vehicle lateral control. After joining the University of Michigan, he continued to make significant contributions in the control applications in the automotive areas including intelligent vehicles, electrified vehicles and automated driving. Huei was very proud of and I was one of admirers of his following works.

Huei is a pioneer for power management methods for hybrid electric vehicles. His methods/process were widely adopted as a common design process in military and civilian vehicles. The methodology was used to develop five prototype/concept vehicles: International Truck 4700 series, U.S. Army FMTV hybrid concepts, Eaton/FedEx hybrid truck (1,000 buses have been built and sold in China by Eaton based on this technology), Chrysler Natrium fuel cell prototype minivan, and an Army FTTS truck.

Control of power split hybrid powertrains is hard. Toyota, GM and Ford all use planetary gear(s) as the core in their power split powertrain. For heavier vehicles such as GM Silverado and Ford F150, typically more than one planetary gear is needed, and clutches are used to enable multiple modes suitable for launching, towing, electric driving, high speed driving, regenerative braking, etc. A significant challenge is that when considering configurations (how power devices and vehicle drive shaft are connected to the planetary gears, and where are the clutches connecting the planetary gear nodes), sizing (how large is the engine, motor and generator, what is the final drive gear ratio) and control (near-optimal fuel economy, including timing for the mode shifting), it is a very large search space. The near-optimal control needs to satisfy certain drivability constraints (0-60mph, 30-50mph) while minimizing energy consumption for certain drive cycles (used for federal motor vehicle fuel economy standard). The near optimal controls are not implemented in real-time, but they must be solved to make sure the millions of design candidates are compared fairly. At the end, only dozens of final design candidates survived, and more sophisticated controls for real-time implementation need to be designed for final design screening. This integrated configuration/sizing/control design process was conceptualized by Huei's group and the methods were published in about a dozen papers.

Huei has also made significant impacts for the control of both fuel cell vehicles and battery electric vehicles. In both areas, his impact is mainly on the development of control-oriented models. This is because the lack of good models was the bottleneck (instead of control algorithms). For a fuel cell system to work well, they need to thoroughly understand many different phenomena beyond electricity generation: breathing (compressor/blower control of oxygen supply through the intake manifold), temperature (ohmic loss, cooling system, convection), humidity (water generated, osmotic drag by protons, and purging). After combing through hundreds of papers, Huei worked with his colleague Anna Stefanopoulou and published a very well cited book in 2004 summarizing their findings. As far as I know, that was for the first time an easy-to-understand control-friendly model was introduced.

Battery models suitable for estimating state-of-charge (SOC, related to range anxiety) and state-of-health (SOH) are important. Huei has studied this problem combining a thorough literature review and large-scale experimental validations. As an example, in one of his papers, twelve equivalent-circuit models were compared using testing data at various stages of battery degradation. Because of their simpler forms, these

equivalent-circuit models can be used for sys-id, for better SOC and SOH management. That particular paper which compares twelve models was cited more than 1,600 times in 10 years, many of them are from industrial researchers. Huei's papers in the field of hybrid electric vehicles, fuel cell vehicles and battery electric vehicles have accumulated more than 15,000 citations, which is a strong indication of the impact of his work.

The most recent achievement of Huei is his role in establishing Mcity, a world leading test facility and research center for connected and automated vehicles launched in 2015 at the University of Michigan. This is not merely a Controls play.

Finally, I would like to note that Huei was a wonderful person. He had a personality to make other people surrounding him happy. I remember many occasions that we shared enjoyment. One such occasion was a day excursion from Shanghai to Suzhou. Huei and I were in Shanghai at the same time for different reasons, but he organized the trip remembering my tweet about Hanshan Temple famous for the poem, "A Night Mooring by Maple Bridge" by Tang dynasty poet, Zhang Ji.

Masayoshi Tomizuka, University of California, Berkeley

Prof. Peng took me in as his PhD student back in 2013 and I spent 5 great years at VDL. I learned knowledge about vehicles and control from him, I learned how to be a good researcher from him, and he showed me what it takes to be a great scholar with his tireless pursuit for high-impact research, caring for students, and leadership in the community. He taught me that it's grit that makes people succeed when I was not working hard, he told me to slow down and focus more on "why" and "what", and he inspired me with his 100 hours per week work ethic. Prof. Peng has had great impact on the field of vehicle dynamics and control and on many people's lives, mine included, and I'm deeply saddened by his passing. Yet I think it is more important that we celebrate his great life, and carry on with what we learned from him. May he rest in peace.

Yuxiao Chen, Nvidia

The picture that comes in mind when I think of Huei is his smile. I had the pleasure and honor to work with him on various automotive related problems while I was a member of the Mechanical Engineering department. During our collaborations his views were insightful but most importantly he treated everyone with respect and kindness.

Loucas Louca, University of Cyprus

Professor Huei Peng was an outstanding scholar, leader, and gracious member of the Dynamic Systems and Controls community. He started his academic career at the University of Michigan in August 1993 after

completing his doctorate at UC Berkeley. He helped to mentor many new DSC faculty members by answering questions, providing guidance, and often just having uplifting encouraging words during a research meeting, conference or other professional event. Huei's contributions to mechanical engineering education and automotive research were outstanding and well received as evident by his many awards, leadership positions, and paper citations. More importantly, he was a good colleague and friend to many across the globe. Professor Dr. Heui Peng will be greatly missed.

John Wagner, Clemson University

Huei was a brilliant scholar and a genuinely kind human being - a role model for all of us. It was a blessing to have him as a collaborator and mentor, many years ago. Every memory of him brings back a smile, may his soul rest in peace.

Hosam K. Fathy, University of Maryland



A photo of Huei with his colleagues at Michigan at a DSCC meeting. From left: Dawn Tilbury, Jeff Stein, Anna Stefanopoulou, Galip Ulsoy and Huei Peng. Shared by Galip Ulsoy.

Huei Peng was a dear colleague and friend. Over the past 30 years we have co-advised students, co-authored papers, and co-authored the textbook Automotive Control Systems. I even had the pleasure of tasting his home-made wines. I was fortunate to have known him and his work well and will miss him very much.

Huei was a wonderful colleague, excellent collaborator, and provided global leadership in automotive research and education. Huei established a superb national and international reputation and is known for his impact on numerous research areas, including vehicle lateral control, control of hybrid and fuel cell vehicles, and connected and autonomous vehicles. He has been recognized through top awards and has compiled an

exceptional citation record because of the widespread intellectual impact of his work.

Let me conclude with a favorite verse:

To live single and free like a tree
But in brotherhood like a forest
This is our longing

Huei realized that aspiration and much more. He was a gentle giant in the field of automotive control systems, and his ideas and writings will live on. May he rest in peace.

Galip Ulsoy, University of Michigan

Prof. Huei Peng was one of the first researchers in the world to work on automatic steering control systems in the early 1990's. His foundational work led to the establishment of PATH as a pioneer in autonomous driving research. He was a great seminar speaker and I have enjoyed attending several of his talks over the years. He will be highly missed by the vehicle controls community.

Rajesh Rajamani, University of Minnesota

Huei was an exceptional colleague and a role model to many of us at Michigan. I always loved chatting with him at social events because of his friendly demeanor. I am incredibly saddened by his untimely death. I wish his loved ones fortitude and comfort in this time of grief. We will keep his memory alive here at Michigan and beyond.

Chinedum Okwudire, University of Michigan

We cannot expect a better colleague than Huei. Warm, gentle, and generous, he was full of ideas and energy. He was always there for me when I needed help and support. We lost a dear collaborator and friend. His smile and warm demeanor will be missed greatly. Sincere condolence to Huei's family.

Jing Sun, University of Michigan

I am deeply saddened to hear the news about Professor Huei Peng. I have known Huei since we were both graduate students at UC Berkeley in Professor Tomizuka's Mechanical Systems Control Laboratory. At the time, Professor Tomizuka was mentoring more than 20 students, so it was hard to get a lot of time with him. To fill this need, I often turned to Huei (and George Chiu) for help when I struggled with homework or needed to bounce ideas about my research off of someone. Huei always made himself available. His mentorship and guidance were critical for me during that time. I will never forget that. His commitment to helping others has motivated me to do the same throughout my career.

Huei and I stayed in touch throughout the years as he and I both moved to Michigan - he to the University of Michigan and me to Ford Motor Company. From my

vantage within the industry, I can say that no university partner has had more impact on the industry than Huei. His leadership in electrified, connected and autonomous vehicles has been extraordinary.

Finally, what I will remember and cherish most is Huei's friendly and positive attitude. His smile and warmth were infectious. Spending time with Huei always left me better than before I saw him. He will be missed. May he rest in peace.

Tony Phillips, Ford Motor and UC Berkeley (graduate)

Prof. Peng is a truly kind person, an accomplished academician, a warmhearted mentor, and a friend to be cherished.

Wei Li, The University of Texas at Austin

I'm deeply saddened by this terrible news.

I first met Professor Peng as an undergraduate student in Jilin University around 2002. Then during my PhD study, I enjoyed several talks and lectures he prepared in Shanghai Jiao Tong University. I learned much from his lively sharing of frontier research (e.g. fuel cell), and also from his passionate teaching style in control theory classes. Since February 2014, I was fortunate to work in his lab as a visiting scholar for two years. In so many one-to-one meetings we had, Professor Peng taught and inspired me a lot about academic research, from research planning to implementation. He is always a great mentor and role model in my career. I will forever be grateful to him.

His sudden passing is a great loss to the research community of vehicle control and automated driving. With so many original contributions he made through years, he will be deeply missed and always remembered.

My thoughts and sincere condolences go to his family at this difficult time. May he rest in peace.

Daofei Li, Zhejiang University

I was shocked to know the sudden passing of Prof. Huei Peng. I know him for many years and always thought him as a personal friend. He is wise, kind and passionate. Like so many others, I was struck by his extraordinary ability to balance the pressures of his cutting-edge research and management activities. He has made many original contributions in the fields of vehicle dynamics control, electric vehicle, and autonomous driving, etc. During the last twenty years, Prof. Peng has had fruitful research collaborations with my Vehicle Dynamics Group at Shanghai Jiao Tong University (SJTU). He also made important contributions to the start-up and development of University of Michigan - Shanghai Jiao Tong University. As the witness of these collaborations, and as a

representative of his friends at SJTU, I would like to convey our condolences to his family. He will be greatly missed and always remembered. May he rest in peace.

Fan Yu, Shanghai Jiao Tong University

Huei was the perfect colleague. I will miss him terribly because he was a great mentor and friend. When I arrived at UM, Huei encouraged me and helped tremendously start my research on Fuel Cells. We travelled together to industry and national labs to see what equipment we needed for experiments. Then we worked together on his large DOE Electrification Education effort where we worked on developing new courses on batteries and hybrid vehicles. Later in our careers, when we both assumed administrative duties, he kept a friendly record about each other biking-to-school record highlighting the importance of health and a balanced life. I was lucky to work with him and his students. He believed in practical and relevant research and was fearless in exploring methodically important areas. I will miss him dearly.

Anna Stefanopoulou, Univ. of Michigan

Prof. Peng is a very friendly and respectable person to share his experience, guide young colleagues, and help others. His research work on control and optimization of hybrid electric vehicles also benefited and inspired my studies on over-actuated electric vehicles.

Yan Chen, Arizona State University

Huei was a giant in automotive controls. We will miss you, Huei. Godspeed.

Greg Shaver, Purdue University

During my master, I have taken courses and projects from Professor Peng about autonomous vehicle. They did inspire me, affect my career path and enhance my ability in autonomous driving. Thanks for everything he brings for us.

Hsi-Fan Liao

I was shocked and saddened to learn about the death of Prof. Huei Peng.

I have known Prof. Peng for over 20yrs. Prof. Peng has great insight and understanding in active vehicle safety areas and contributes many excellent research works, especially for integrated vehicle chassis control and vehicle rollover studies. He was also a great supporter and mentor to the ASME Automotive and transportation systems technical committee.

It was a big loss for the community of vehicle dynamics and control. I will miss Prof. Peng.

Taehyun Shim, University of Michigan-Dearborn

Memorial Service for Prof. Huei Peng

To celebrate Huei's life, there are plans for a memorial service on December 29th, 2022 at 4:30pm EST online via zoom. An in-person reception will follow right after the online zoom at around 7:30 pm EST in Ann Arbor. The event is open to everyone. Please RSVP at: <https://tinyurl.com/20221229hueipeng>.

Please feel free to forward this message or flyer below to anyone interested. If you have any questions, please email Anna Stefanopoulou (annastef@umich.edu).



Please join us
In Loving Memory of
HUEI PENG
1962 - 2022

Thursday, December 29, 2022
4:30 PM EST

ONLINE VIA ZOOM

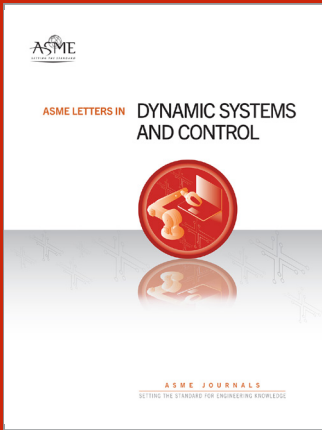
In-person reception to follow at approximately 7:30 PM EST, in Ann Arbor, Michigan.

Please RSVP at:
tinyurl.com/20221229hueipeng

For any additional information, please feel free to contact:
hueipengmembrance@gmail.com



The Dynamic Systems and Control Division Newsletter is published twice annually (Summer & Winter) to the Division's email list. Please submit your items for publication by e-mail to the editorial team:
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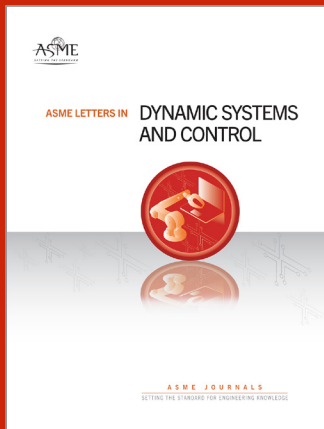
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The Purpose of *Journal of Autonomous Vehicles and Systems* is to provide an international platform for the communication and discussion of technical knowledge and solutions in the transformative areas of the research and engineering design of autonomous vehicles and systems that operate in all media and inter-medium environments of: **Ground, Air, Space, and Water.**

The Focus of the journal is on autonomous vehicle system-of-systems approach to

- Modeling and Simulation
- Design and Utilization
- Physical and Virtual Testing

The Vehicle Applications include but are not limited to

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- Infrastructure Monitoring, Surveillance, and Military Applications
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Artificial intelligence and machine learning; Artificial intelligence mimicking human intelligence for self-operation, shared mental and cooperative environment models; Intelligent perception and cognitive architectures for autonomous operation, decision making, controls and observation; Autonomous system models; Modeling, simulation and designing autonomous vehicle systems for their autonomy; Operator-vehicle interaction, including communication, operator trust in autonomous vehicle and autonomy transparency, teaming and task allocation; Shared control and mixed initiatives of autonomous vehicles, haptic feedback based autonomous operation, and driver-assistance systems; Active and passive payload models; Proprioceptive sensors in autonomous vehicle systems and exteroceptive sensors for autonomous vehicle and environment interactions; Outdoor and cyber-physical indoor proving grounds and research facilities; Inputs/outputs and environmental models in autonomous vehicle simulation and design; Gaming environments.

Topic Areas include, although not limited to:

- Autonomous vehicles and systems by medium of operation
- Autonomous vehicle and system dynamics, optimization and controls in interaction with multi-physics environments
- Autonomous vehicles and systems by applications
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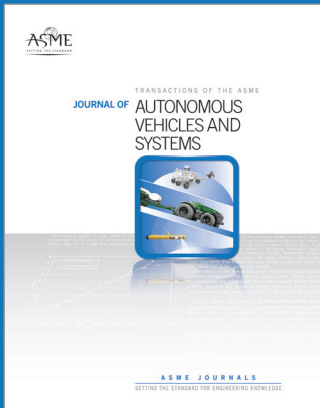
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JUNE 2022

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- 20% acceptance rate
- 2.87 months from submission to Technical Editor decision
- 17 countries represented in submissions
- Associate Editors drawn from academia (63%), industry (29%), and government/military (8%)

CALL FOR NEW ASSOCIATE EDITORS

JAVS is looking for highly qualified researchers across fields (academia, government/military, and industry) to serve as Associate Editors to build and enhance the journal's quality and reputation internationally. In particular, JAVS is actively seeking candidates with expertise in autonomous vehicles and systems in the water domain.

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Lauren Murrah, MA,
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lauren.asme@gmail.com

Article submission, visit:

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Call for Papers

The 2023 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM2023) will be held on **June 28-30, 2023 in Seattle, WA, USA** (<https://aim2023.org/>). As the flagship conference on mechatronics and intelligent systems, AIM 2023 will bring together the international mechatronics community to discuss cutting-edge research results, expert perspectives on future developments, and innovative applications in mechatronics, robotics, automation, industrial electronics, and related areas.

The sponsors and organizers of AIM 2023 invite submissions describing original work, including but not limited to the following topics: Actuators, Automotive Systems, Bioengineering, Data Storage Systems, Electronic Packaging, Fault Diagnosis, Human-Machine interfaces, Human-Robot Interaction and Collaboration, Human Factors in Mechatronics Systems, Industry Applications, Information Technology, Intelligent Systems, Machine Vision, Manufacturing, Micro Electro-Mechanical Systems, Micro/Nano Technology, Modeling and Design, System Identification and Adaptive Control, Motion Control, Vibration and Noise Control, Neural and Fuzzy Control, Opto-Electronic Systems, Optomechanics, Prototyping, Real-Time and Hardware-in-the-Loop Simulation, Robotics, Sensors, System Integration, Transportation Systems, Smart Materials and Structures, Energy Harvesting, and other frontier fields.

We invite high-quality submissions in the categories below. All submissions must be uploaded to the submission website: <http://ras.papercept.net/conferences/scripts/start.pl> following the schedule below.

Contributed: All papers go through a rigorous peer-review review process. All accepted manuscripts must be presented by the authors at the conference, will be published in the conference proceedings, and will be submitted for inclusion in IEEEExplore, subject to formatting and copyright requirements.

Invited: Invited sessions consist of 4 to 6 thematically related invited papers that will be presented together at the conference. Invited session proposals must include a brief statement of purpose and extended abstracts of the included invited papers. Invited papers are submitted and reviewed following the same process as contributed papers, and are included in the proceedings

Workshops: Half-day or full-day workshops will be in one of two categories: (1) *Tutorial Workshops* focused on educating attendees about an emerging topic and (2) *Research Workshops* focused on bringing together experts to discuss an emerging field. Tutorial and workshop proposals must include a statement of objectives, a description of the intended audience, and a list of speakers with an outline of their planned presentations. Unless specifically requested, individual tutorial and workshop presentations are not peer reviewed, and do not appear in the proceedings.

Special Sessions: Special sessions will be organized to give exhibitors, organizations, and attendees a venue to discuss specialized, new, and not strictly technical topics (such as products) that would not be appropriate for the other submission categories. Special Session proposals must include an abstract of the special session.

Late Breaking Results: Poster presentations on late-breaking mechatronics research results will be presented during the conference. Note that the deadline for posters is much later than the deadline for papers, allowing presenters to share their most recent results. Posters will be peer-reviewed.

TMECH/AIM Focused Section and TMECH Presentation-Only: TMECH authors have two opportunities to share your work at AIM2023. (1) *Presentation Only:* All authors of TMECH papers accepted between Feb. 16, 2022 and Feb. 15, 2023 have the option to present their work during the conference. (2) *Focused Section:* Submissions to the 4th Edition of the Focused Section on TMECH/AIM Emerging Topics will go through the TMECH review process and, if accepted, are presented at AIM2023 and published as part of the focused section published in the August 2023 issue of TMECH. Inclusion in the focused section requires paid registration and presentation. Papers rejected for publication in TMECH will automatically be considered by the Program Committee of AIM 2023 for inclusion in AIM2023 as a contributed paper. Details are available on a supplemental call for papers available on the conference website: <https://aim2023.org/> and the TMECH website <http://www.ieee-asme-mechatronics.info/>.

Important Dates

TMECH/AIM Focused Section Submissions:	January 6, 2023
Invited/Workshop/Special Session Proposals:	January 27, 2023
Contributed and Invited Papers and TMECH Presentation Only:	February 1, 2023
TMECH/AIM First Decision:	March 1, 2023
TMECH/AIM Revisions:	March 25, 2023
Notification of AIM and TMECH/AIM Paper Status:	April 25, 2023
Final Paper Submissions:	May 10, 2023
Late-Breaking Submissions:	May 16, 2023

Call for Papers

The Fourth Edition of Focused Section on TMECH/AIM Emerging Topics

Submissions are called for the Fourth Edition of Focused Section (FS) on TMECH/AIM Emerging Topics. This Focused Section is intended to expedite publication of novel and significant research results, technology and/or conceptual breakthroughs of emerging topics within the scopes of TMECH (www.ieee-asme-mechatronics.org), providing rapid access to the state-of-the-art of TMECH publications to the mechatronics community.

The submitted paper must not exceed 8 TMECH published manuscript pages, excluding photos and bios of authors, and will be subject to the peer review process by TMECH standard. All final accepted papers will be published in August Issue of TMECH in 2023, and will be presented in the 2023 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2023, <http://www.aim2023.org/>). The rejected papers from the submissions will be transferred to the Program Committee of AIM 2023 for further review and consideration as conference contributed papers.

The review process for submissions to this Focused Section will be conducted in up to two rounds with one Major/Minor Revision allowed, and the final decision falls into one of the following two categories:

1. Accept for publication in Focused Section. In this case, the paper will be accepted by AIM 2023 concurrently for presentation only, with full information of the paper included in the preprinted proceeding of AIM 2023. The final publication in TMECH, however, will be subject to the completion of presentation in AIM 2023 with full registration fee paid.
2. Reject for publication in Focused Section (after the first or second round). In this case, the paper, as well as all the review comments, will be forwarded to the Program Committee of AIM 2023 for further consideration. A final Accept/Reject decision will then be made by the Committee as a conference contributed paper for AIM 2023.

Manuscript preparation

Papers must contain original contributions and be prepared in accordance with the journal standards. Instructions for authors are available online on the TMECH website.

Manuscript submission

Manuscripts should be submitted to TMECH online at: mc.manuscriptcentral.com/tmech-ieee, selecting the track 'TMECH/AIM Emerging Topics'. The cover letter should include the following statement: This paper is submitted to the Fourth Edition of Focused Section on TMECH/AIM Emerging Topics. The full information of the paper should be uploaded concurrently to AIM 2023 online at: ras.papercept.net/conferences/scripts/start.pl, noted with the given TMECH manuscript number in the designated area.

Submission/Review/Decision Timeline:

Opening Date of TMECH/AIM FS Submission Site (first submission):	November 1, 2022
Closing Date of TMECH/AIM FS Submission Site (first submission):	January 6, 2023
Full Information of TMECH/AIM FS Paper Submitted to AIM Site:	January 6, 2023
First Decision for TMECH/AIM FS Submission:	March 1, 2023
Revised TMECH/AIM FS Submission Due by:	March 25, 2023
Final Decision for TMECH/AIM FS Submission:	April 25, 2023
Final Version of TMECH/AIM FS Submission Due by:	May 10, 2023
Publication of Focused Section in TMECH:	August 2023

Contacts: For any questions related to this Call for Paper, please contact:

Qingze Zou, qzzou@soe.rutgers.edu, Senior Editor of TMECH,
Garrett Clayton, garrett.clayton@villanova.edu, Program Chair of AIM 2023.



7th IEEE Conference on Control Technology and Applications (CCTA) 2023 August 16-18, 2023 – Bridgetown, Barbados

CCTA 2023, the 7th IEEE Conference on Control Technology and Applications, will be held Wednesday through Friday, August 16-18, in Bridgetown, Barbados. CCTA 2023 will be an in person conference. CCTA 2023 is one of the main conferences sponsored by the IEEE Control Systems Society. The technical program will feature the presentation of contributed and invited papers, as well as tutorial sessions and workshops, focusing on technological advances and applications of control engineering. CCTA 2023 will spearhead a new initiative that emphasizes career networking and special sessions focused on industry relevant control problems. It will also provide an avenue for enhanced interactions between industry, government and academic researchers. With easy accessibility, including from Europe and the Americas, and industry sponsored sessions, significant participation from industry is anticipated. The conference includes all aspects of control engineering for practical control systems, from analysis and design, through simulation and hardware. CCTA 2023 will feature applications of control technology for robotic, mechatronic, biomechanical, aerospace, power and energy systems, mobility, smart cities, control of networks, AI/ML developments in control, and many others. Plenary lectures will be delivered on each of the three days as part of the conference program. A series of tutorial workshops will be presented on Tuesday preceding the conference. Authors of selected articles presented at CCTA 2023 will be invited to prepare an extended version of their work to be considered for publication in a Special Issue of IEEE Transactions on Control Systems Technology (TCST). Participants will have the opportunity to present their papers that were published in IEEE TCST in 2022-2023.

Call for Contributed Papers: Papers are invited in the form of regular manuscripts. Papers must conform to the submission policy, which will be provided on the website, requiring that all manuscripts be in 2-column format and meet strict page limits.

Call for Invited Sessions: Invited sessions consist of 5-6 papers, which should present a unifying theme from a diversity of viewpoints. Proposals must describe the motivation and relevance of the session. Proposals must be accompanied by full versions of each paper, which will be individually reviewed along with the proposal itself.

Call for Tutorial Sessions: Tutorial sessions and panel discussions addressing state-of-the-art control methods and advanced industrial applications are solicited.

Call for Workshops: Workshops to be held prior to the conference are solicited on all related topics. Proposals addressing novel control methodologies and applications are strongly encouraged. For information regarding proposal submissions contact Jakob Stoustrup <jakob@es.aau.dk>.

Call for Industrial Abstracts: As an application and industry-oriented conference, CCTA offers the possibility to submit industrial abstracts that are included in the conference preprints but not in the proceedings. The corresponding author must be affiliated with industry. Industrial abstracts must conform to the submission policy, described below, requiring that all manuscripts be in 2-column format and meet the strict page limits of 2-4 pages. They are subject to peer-review similar to regular contributed papers. Industrial abstracts might be submitted in terms of an invited or special session.



The conference will take place at the Hilton Barbados in Bridgetown. Located on the 17th-century ruins of Charles Fort, a UNESCO World Heritage Site, the Hilton Barbados Resort offers access to many amenities. Located 15 minutes from Bridgetown and the Mount Gay Rum Tour, and 40 minutes from Shark Hole Beach, there are many things to explore and enjoy.

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Important Dates

Paper Submission Opens:
November 4th, 2022
Invited Session Proposal Due:
January 16th, 2023
Paper Submission Due:
January 31st, 2023
Decision Notification:
April 21st, 2023
Registration Opens:
Middle of May 2023
Final Submission:
Middle of June 2023

For further information please visit: <https://2023.ieeeccta.org/>



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Fall 2023

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Candidates should have demonstrated the beginnings of a nationally recognized scholarly research program with an understanding of the development of externally funded research support. The successful candidate will be responsible for conducting research and teaching in our Mechanical and Aerospace Engineering undergraduate and graduate programs. Position requires a PhD in Aerospace Engineering or related field.

Apply here >> <https://jobs.rutgers.edu/postings/186229>

Our department has more than 35 full-time faculty with more than 850 undergraduate students in Mechanical Engineering, Aerospace Engineering, and Packaging Engineering and more than 160 graduate students. The MAE Department is one of the seven academic units of the School of Engineering, located in Rutgers-New Brunswick, a culturally and academically diverse environment with more than 4,000 full-time and part-time faculty, 8,500 graduate students, and 32,000 undergraduate students. We are proud of our growing diverse engineering student population where over a quarter of our students are women and nearly twenty percent are underrepresented minorities. Diversity and inclusion are key foundational elements of the University's academic culture and may involve, but are not limited to, gender, ethnicity, race, culture, national origin, physical ability, veteran status, or other underrepresented personal or professional characteristics. The School of Engineering and the Department of Mechanical and Aerospace Engineering are fully committed to equal opportunity in employment and education. We encourage applications from the above groups and individuals with strong commitment to inclusive and equitable teaching practices and pedagogy within the classroom and research environments.

Rutgers, the State University of New Jersey, is an Equal Opportunity / Affirmative Action Employer. Qualified applicants will be considered for employment without regard to race, creed, color, religion, sex, sexual orientation, gender identity or expression, national origin, disability status, genetic information, protected veteran status, military service or any other category protected by law. As an institution, we value diversity of background and opinion, and prohibit discrimination or harassment on the basis of any legally protected class in the areas of hiring, recruitment, promotion, transfer, demotion, training, compensation, pay, fringe benefits, layoff, termination or any other terms and conditions of employment.



RUTGERS

School of Engineering

Department of Mechanical and Aerospace Engineering School of Engineering Rutgers University

Fall 2023

The Department of Mechanical and Aerospace Engineering at Rutgers University invites applications for a tenure-track faculty position. Preference will be given to candidates at the Assistant Professor level. Higher level candidates with exceptional qualifications will also be considered for appointment at the Associate or Full Professor level. Candidates with expertise in the following area are highly encouraged to apply:

- **Computational Mechanics, Data Sciences and Design;** Development of advanced computational methods and techniques with applications to Solid and Structural Mechanics, Computational Multiphysics, AI- and Machine Learning-based Engineering Design and Optimization, Physics-informed Computational Machine Learning, Computational Materials Design, Integrated Computational Manufacturing and Material Engineering (ICME), Multiscale Computational Modeling, Computational Nano-mechanics.

Apply here >> <https://jobs.rutgers.edu/postings/186225>

The successful candidate will be expected to teach graduate and undergraduate courses in Mechanical and Aerospace Engineering; develop a nationally recognized and externally funded scholarly research program; and maintain synergy with one or more department strengths in Advanced Manufacturing, Robotics and Mechatronics, Energy, Thermal Materials Processing, Aeronautics, and Packaging Engineering. The 3,000 square foot state-of-the-art New Jersey Advanced Manufacturing Institute offers excellent opportunities for research and teaching. The candidate must hold an earned doctorate in Mechanical Engineering, Aerospace Engineering, or a closely related field.

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RUTGERS

School of Engineering

Department of Mechanical and Aerospace Engineering
School of Engineering
Rutgers University, New Brunswick, NJ

Fall 2023

The Department of Mechanical and Aerospace Engineering at Rutgers University invites applications for a non-tenure-track faculty position in the area of Packaging Engineering. Applications of all levels will be considered, including Assistant, Associate, and Full Professor ranks. Candidates with expertise in one or more of the following areas are highly encouraged to apply: Packaging Engineering; Packaging Testing; Packaging Manufacturing; Sustainable, Flexible, Smart, Recyclable, and/or Bioinspired Packaging and Materials; Sustainability and Life Cycle Analysis; Green Technologies; Robotics and Automation for Package Engineering.

The successful candidate is expected to have rich experiences in industrial applications in especially those areas listed above, and in building industrial relations, and to teach graduate and undergraduate courses in Packaging Engineering and related fields. The candidate is also expected to assist the current program director in managing the Packaging Engineering Testing and Teaching labs, and in outreach activities and developing and maintaining industrial partnerships. Other responsibilities include advising undergraduate/graduate students and supervising student projects, activities, and organizations. A graduate degree in Packaging Engineering (Master or PhD) or related fields is preferred.

Apply here >> <https://jobs.rutgers.edu/postings/186222>

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