ASME
SETTING THE STANDARD

DSCD NEWSLETTER

Summer 2023 Issue

Dear colleagues,

Hope you are enjoying the summer. We are pleased to share with you the new issue of ASME DSCD Newsletter. This is the first issue handled by the new editor team. Our aim is to make the Newsletter a people-centered platform to connect and serve all DSCD colleagues and YOU!

In this issue, you will find a novel perspective in understanding social and professional equity, in the article *A mechantronics-inspired multi-agent model for social and professional equity* by Professor Clarence W. de Silva. Then, you will find a comprehensive review of this year's ACC by Professor Xiaobo Tan, with many photos. These are followed by several honors and awards announcements, new faces spotlights, interview with recent NSF CAREER Awardees, and upcoming conferences and openings.

Please enjoy your reading, and do not hesitate to contact us if you have messages to share with all.

Editor: Changliu Liu, Carnegie Mellon University
Senior Associate Editor: Shu-Xia Tang, Texas Tech University
Associate Editor: Minghui Zheng, University at Buffalo

A Mechatronics-inspired Multi-agent Model for Social and Professional Equity

Clarence W. de Silva[1]

Abstract This article presents a multi-agent mechatronic viewpoint for realizing some favorable characteristics in a human community. Specifically, analogies exit between equity, diversity, and inclusion (EDI) in a community, and the corresponding optimal or unique, unified, and integrated characters, respectively, in a multi-agent mechatronic system. Ways to realize the desired EDI in a community, through inspiration from a properly developed multi-agent mechatronic system, in an "intelligent" manner, which possesses the analogous optimal/unique, unified, and integrated characteristics, respectively, re are indicated. The reverse process of realizing a proper multi-agent mechatronic system through inspiration from a well-developed human community is another benefit of the indicated methodology. The end message of the article twofold:

1. The realization of a desirable multi-agent mechatronic system can be inspired by the way of achieving equity, diversity, and inclusion in a human community,
2. The realization of equity, diversity, and inclusion in a human community can be modeled through the analogous characteristics of optimal/unique outcome, unified methodology, and integrated treatment in a multi-agent mechatronic system.

Introduction

A diverse community is well-served by working together in a cooperative manner (i.e., with a mindset of fair accessibility for and collaboration or "inclusion" of everyone), while understanding and gauging the member performance through a compatible yardstick and respecting the heterogeneous nature and needs or "diversity" of the members by providing equal opportunity to all the members of the community, resulting in a fair, balanced, and effective outcome (i.e., realizing "equity"). Since we commonly engage in multidisciplinary and multitasking activities, we are required to work together for effectively achieving the end objectives. This consideration is applicable in any context or setting such as professional (e.g., technical, medical, commercial and business, and administrative), social, educational, political, and sports (this could fall into the professional setting as well). No matter from what viewpoint it is addressed, working cooperatively, inclusively and effectively while respecting the equity, diversity, and the personal needs of the community members (agents) is paramount. This article addresses some key issues in this regard. As our ancient literature says, since one person becomes an expert in just one area, it is difficult to be the "best" in every aspect of an undertaking or a process. Yet, one may seek to achieve some balance or equity or optimality in several objectives.

In comparison, an introduction to multi-agent systems is appropriate. Cooperative operation of multiple agents (typically, physical devices such as robots, but may include software modules), and optimization of such systems have been extensively investigated. In this backdrop, optimal sharing of resources (e.g., of dynamic agents) among multiple applications under a common system framework has been achieved as well. Information fusion is the process of combining the information from multiple sources to improve the final outcome/inference/decision in a system. In agent modeling, self-awareness and attention have been incorporated to the agents. Decision making in a multi-agent system may be treated as an optimization problem, and several procedures of optimization, some including both qualitative and quantitative objectives, have been developed. In a mechatronic system, this may be achieved through a process of multi-objective optimization.

A parallelism or "analogy" can be drawn between a "Community" and a "Multi-agent Mechatronic System." A desired way to incorporate equity, diversity, and inclusiveness (EDI) into a community may be inspired and achieved by considering the process of realizing a desirable multi-agent mechatronic system, with the optimal or unique, unified, and integrated characters, respectively.

Equity, Diversity and Inclusion (EDI)

EDI is very important for the sustainability of a community no matter what the nature of the community or organization is. Extra effort must be made to include diverse members into any organization and also provide them equal opportunities, and treat them uniformly and in a respectful manner, without discrimination. We often separate (and discriminate?) people based on gender, race, religion, culture, age, social status, educational qualification and so on. This is a very sensitive issue, and it is important to pay particular attention to it, in any organization. The yardstick of assessing the value of diversity in a human community and providing them opportunities should be uniformly similar and fair (i.e., in a "unified" manner, in

[1]This article is reproduced with permissions from: The Official E-Newsletter of the Institution of Engineers Sri Lanka, Issue 61, No. 02, pp. 4-6, May 2023. https://iesl.lk/SLEN/61_draft/Mechatronics.php

Mechatronic System	Community
Multi-agent System	Diverse Group of People
Optimal/Unique Outcome	Equity
Unified Methodology	Diversity
Integrated Treatment	Inclusion

Table 1: Conceptual analogy.

the vocabulary of Mechatronics).

In social environments, equity and civility may be implicitly enforced through the race, the religion and the culture of the participants. I remember that in my childhood, when we lived in a village where my parents were teaching, we commuted to the city of Badulla several times a month. We would break our journey at a Muslim shop (where we did much of our grocery shopping). The shop owner was a very gentle soul, who would invite my father and me to join them for lunch. We would sit around on the floor in the dining area, together with the shop owner and the workers of various ranks. We would serve ourselves food from common plates that were placed in the middle of the dining area, onto our individual banana leaves, and enjoy. It was a remarkable experience. One problem was clear to me then. My mother (or any female) was not invited to take part in the lunch with us. We made sure that my mother had her lunch separately at the nearby school (whose headmaster was a friend of my parents). Also, as a student in USA, I frequently visited the apartment of a Hindu friend, who was a strict vegetarian, and his place did not have any furniture. We would remove our shoes at the entrance, sit on the floor, talk and eat. That too was quite enjoyable. Recently I saw a video where Prime Minister Modi of India would throw away the special chair that was reserved only for him, and then sit on the floor with the other participants, young and old. These are examples where equity and inclusion are naturally realized or needed, to some extent. In essence, any organization should be inclusive, respectful, collegial and collaborative.

Mechatronics Viewpoint

The formal and enhanced definition of a mechatronic system has been established [1]. It seeks an "integrated" and "unified" treatment of a dynamic system that would generate an "optimal" or "unique" outcome for the system. Here, Integrated means, a concurrent or simultaneous treatment, which would consider all physical domains of the system simultaneously, while including "coupling" or "dynamic interactions" or "energy conversion" that exist among them; Unified means, a mechatronic approach would exploit analogies or similarities among different physical domains in the system, and would use similar or analogous procedures to model the dynamics in those physical domains; Unique means, the realization of a "unique" outcome (e.g., by a procedure that leads to the "best" outcome). This implicitly implies that some form of "optimization" is associated with the used procedures. In addition, as a procedural requirement, Mechatronics would follow a "systematic" procedure; i.e., it would follow a clearly indicated sequence of steps, without any confusion as to the approach or the activity and the outcome. In this backdrop, by taking inspiration from Mechatronics, the realization of EDI within a community may possess the conceptual analogies that are indicated in Table 1.

In this analogy, a "diverse community" may be represented by a "multi-agent system" where the agents would interact with each other. The agents are the members of the community. Then, working together in a cooperative manner, with a mindset of accessibility for and collaboration or "inclusion" of everyone, would be analogous to the "integrated" approach in Mechatronics. Understanding and respecting the heterogeneous nature and needs or "diversity" of the members, and providing to all the members of the community, equal opportunity, as gauged by a compatible yardstick would be analogous to the "unified" treatment in Mechatronics. The realization of a fair, balanced, and effective outcome within the community, is the realization "equity." This would be analogous to the "optimal" or "unique" outcome in Mechatronics. By taking inspiration from this mechatronic analogy, it would be feasible to come up with a practical framework for realizing EDI in a diverse community, by treating it similar to a multi-agent mechatronic system. The modeling, simulation, design, and implementation of a process to achieve EDI could then be carried out through the means of Mechatronics. The reverse process of designing proper mechatronic system through inspiration from an effective community of humans is similarly possible.

Organizational Structure

In any community, a multi-person (i.e., multi-agent) activity will be facilitated by some organizational structure [2]. This may be either enforced or natural, and permanent or temporary (and ad hoc, as necessary). The two extremes of any organizational structure are centralized (and hierarchical) and fully distributed (and decentralized).

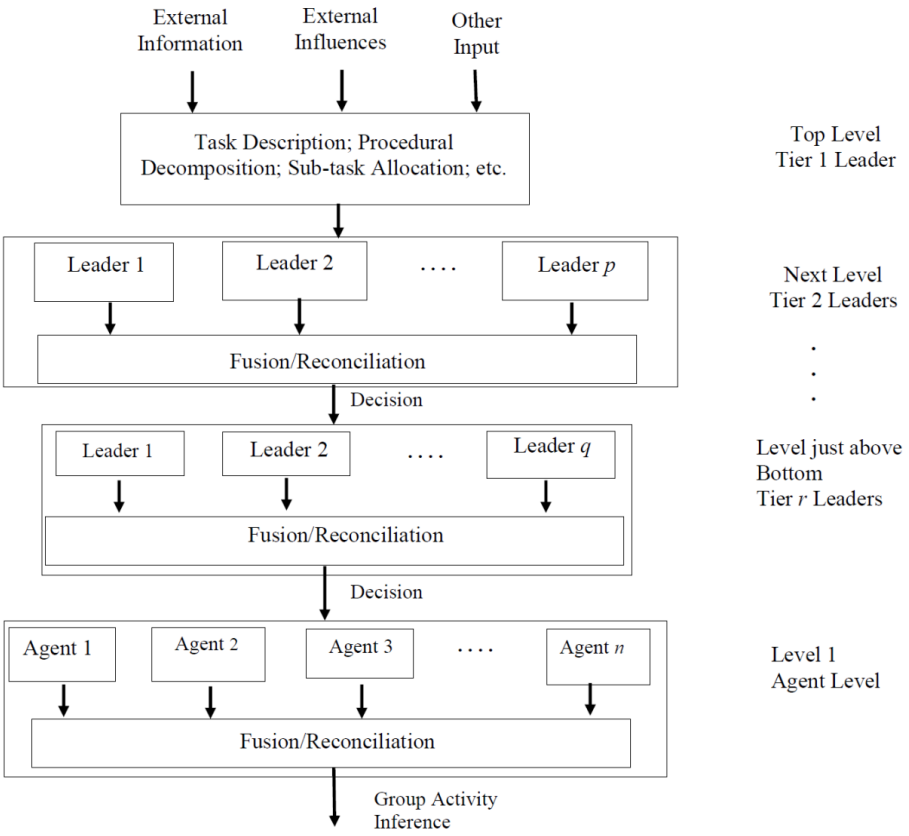

Figure 1: A hierarchical or centralized structure of organization.

In a typical hierarchical or centralized structure (see Figure 1), the decisions are made at an upper level and communicated down the chain of command. Specifically, the decision maker at the top of the hierarchy determines (establishes) a set of required cooperative tasks and assigns them to the agents (i.e., leaders who are members of the community) in the immediately lower level in the hierarchy (and they may assign associated subtasks to agents or lower level leaders below them, and so on). The agents will determine the most appropriate actions for themselves, based on their knowledge, needed skills—self-awareness, available resources, and so on. Since, often, cooperation of other agents would be needed to carry out a task (i.e., a cooperative task) the specific agent has to know the related attributes of the other agents as well, and also their availability. Effective communication is essential here. Often, prior to making the final decision, the agents may communicate the acquired information to a decision maker at an upper level, who will evaluate, moderate, and make the final determination. Hence, in a more flexible communication structure, the unidirectional (top-down) communication that is shown in Figure 1 may be made bidirectional, which will be more inclusive.

At each level in Figure 1, the agents (i.e., level leaders) determine the most appropriate actions for themselves (based on their knowledge needed for cooperative tasks, their abilities—self-awareness, and their knowledge/perception of the abilities of the other agents, and will make a decision. The upper level leaders will evaluate or moderate the decision and make the final determination. This is a process of Fusion or Reconciliation. The hierarchical structure has the advantage of a clear line of command. Yet, it can be rather authoritative and can be demotivating for the agents. In view of the long chain of command, the actions in response can be slow.

In a fully decentralized and distributive structure (see Figure 2), the agents are conceptually considered to be equal within a common hierarchical level, albeit with a single leader who manages these agents. Many of the relevant activities that were mentioned under a hierarchical structure (Figure 1) would still be necessary then. In the beginning, there may not be a group leader in this conceptual structure, and it may be necessary to select a leader to resolve issues that may arise during the activities. The leader may be chosen, albeit temporarily, and with the consent of the agents. The leader may have authority only over a subgroup of agents, not all the agents in the organization. The advantages and disadvantages of a hierarchical struc-

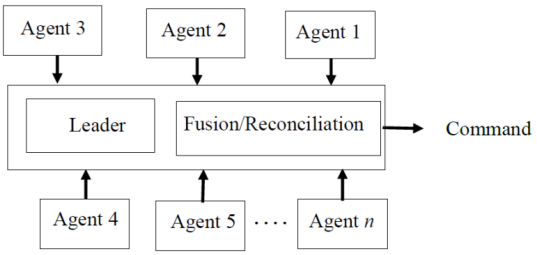

Figure 2: A decentralized or distributive structure of organization.

ture will be the disadvantages and advantages, respectively, in a decentralized structure.

A crucial consideration in an organizational structure is the establishment of a management plan. In particular, the plan should indicate effective feedback paths from different activity entities (and hierarchies, if the structure is hierarchical). Synergy should be present among the agents in a specific task group, and this will help increase the effectiveness and efficiency (including speed) of the task activities. There are two other aspects of management that must be explicitly addressed. First, there needs be clarity in the agent partnership of the activities in the subtasks, with regular inter-communication, assessment, and decision making. Second, from the very inception of a project, the authority of the collaborators to modify/change the emphasis/direction of various activities should be clearly articulated. A critical guideline for any organization is that the leader should not be a dictator, as will be clear from this article.

Conflict Resolution

Regardless of the nature of the organization, conflicts are bound to happen. A reason for them could be the lack of proper understanding of the agents, their backgrounds and needs, and the nature and the possible cause/origin of the conflict. Effective and regular communication is a good tool to avoid serious and unnecessary conflicts. When a conflict arises, it may be possible to resolve it through dialog. A platform must exist to carry out such dialog, quite early in a situation of conflict. If not resolved, it may be necessary to seek help from a mentor or a task leader. Reassignment of tasks and personnel may be needed or possible as the last resort, in resolving a conflict. Above all, any discriminatory barriers must be removed in the organization, to minimize conflicts.

Multi-agent Systems

In a multi-agent system [3-5], the agents (or community members) work together to make decisions regarding the needed actions. The structure of a multi-agent system is shown in Figure 3.

The inputs from the n agents in the system go into the decision making module [6]. The three basic components of this module are shown in Figure 3. They are the knowledge base, the data base, and the inference engine. The decision making module is able to make new inferences or decisions using its reasoning mechanism (inference engine), by interpreting the meaning and implications of the new information within the capabilities of the existing knowledge base. The associated decision-making task is the "intelligent" processing of data with available knowledge (the task of the inference engine). This activity is what is shown as fusion or reconciliation, in Figure 1 and Figure 2. It involves matching the considered data with the knowledge, and it may lead to the enhancement, refinement, and updating of the knowledge base itself, through intelligent decision making.

Knowledge Base: Central to the decision making module is the Knowledge Base. It contains knowledge and expertise in the specific domain, particularly the domain-specific facts and heuristics useful for solving problems in the domain. This knowledge is commonly represented as a set of if-then rules.

Data Base: The second basic component of the decision making module is the Data Base, which is primarily located in a short term memory. The data base may contain the current status of the problem, inference states, and all the available data (including any new data). The externally provided new information (inputs) are also stored in the data base. This data represents the "context" of the decision-making process.

Inference Engine: The Inference Engine is the "driver" of the decision making module. It "processes" the data in the data base together with the knowledge in the knowledge base, to solve problems and arrive at inferences. It follows that the representation and the processing of knowledge are central to the functions of the decision making module. Some form of optimization will be useful in the decision making.

Fusion/Reconciliation: In Figure 3, the individual inferences corresponding to the inputs from the agents are "fused" through a process of reconciliation, by a leader or a moderator, to arrive at the

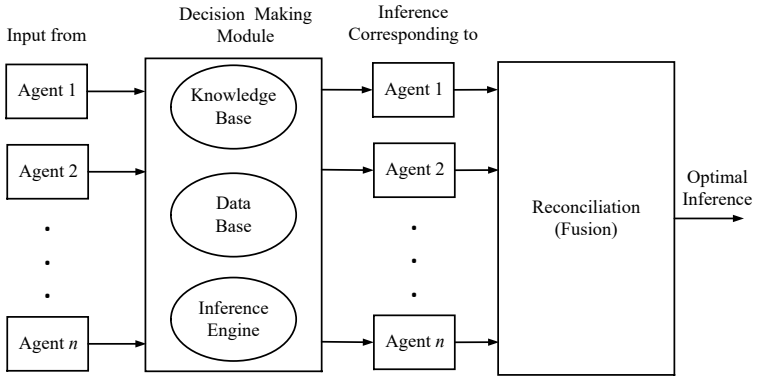

Figure 3: The structure of a multi-agent system.

overall inference. Fusion involves the combination of the inferences from the agents to improve the "quality" of the inference. The quality may include such aspects of the inference as accuracy, reliability, robustness, confidence (reduced uncertainty), usefulness, and the detail or completeness or comprehensiveness.

Optimization: It is known that optimal or unique outcome is a key goal of a mechatronic system [1]. In a mechatronic system, this is realized primarily in one of two ways. 1. If the mechatronic procedure leads to more than one design in a system, pick the best design among them; 2. Implement a procedure of multi-objective optimization. The latter may be achieved through a procedure of machine learning, such as deep learning or convolutional neural networks [7]. Here, it is important to include the "physics" of the problem, not just the observed "data" [8]. Since, in a human centric system, both quantitative and qualitative criteria have to be considered in optimization, an appropriate approach for that purpose has to be used [9]. It should be noted that the optimization of the decision making may be done at both the agent level and the system level.

System Operation: The system may have a hybrid form with both distributed and centralized characteristics. Its operation may follow the following steps: 1. Based on the system conditions and requirements, the central decision maker (CDM) will determine the required cooperative tasks (optimally) and announce them to the agents; 2. Each agent will determine the most appropriate actions for itself (based on its knowledge of the needed tasks, own abilities—self-awareness, and knowledge/perception of the abilities of other agents, etc.), in a local (from agent's perspective) manner; 3. The CDM will evaluate/moderate the agents' determinations and make the final decision; 4. Finally, the system performance may be determined, improvements could made, and subsequent tasks would be established.

Decisions: Local (agent's) and central decisions may include: What are the agent's actions (e.g., to cooperate or not, optimally perform its task); modifications to the agent's operations; modification of the system structure (e.g., select the leader, add/remove agents) if necessary.

The present section has exclusively considered a model of a multi-agent mechatronic systems. Since the final focus of the article is the achievement of EDI in a community, the indicated concepts of a multi-agent mechatronic model may be extended to that, particularly in view of the analogy that has been brought up earlier in the article, related to Equity, Diversity, and Inclusion, which are analogous to Optimal, Unified, and Integrated character in a mechatronic model (see Table 1). In other words, proper realization of EDI in a community may be designed and simulated using a multi-agent mechatronic model.

General Guidelines

Any organization has a management structure, which may be natural or enforced, hierarchical or decentralized, and permanent or ad hoc. The organization should establish a careful management plan. The leader of the organization or group should not be a dictator. Synergy should be present among the agents in a task group. There should not be discrimination based on gender, race, religion, culture, age, social status and so on. The members should be provided equal opportunity, and treated uniformly and in a respectful manner. Any discriminatory barriers must be recognized early and removed completely. While the group members are collegial and collaborative, there bound to arise conflicts. They must be resolved as early as possible, through dialog, mentoring, and even the reassignment of the tasks and the personnel.

A multi-agent mechatronic system possesses similarities to a community of people. Such a model can be inspired by the community, and conversely, the organization of the community, while satisfying equity, diversity, and inclusion (EDI) can be improved

and enhanced through the use of a properly designed multi-agent mechatronic system. As President John F Kennedy historically said, and as Rodney Brooks [8] recently modified it to suit the current state of artificial intelligence (AI), the present article further adapts it as follows: "Ask not only how a properly organized community can inspire the design of a multi-agent mechatronic system, but how a properly-designed multi-agent mechatronic system can help improve the organization of a community, in meeting the requirements of equity, diversity, and inclusion."

Conclusions

This article introduced a multi-agent mechatronic viewpoint to realizing some favorable characteristics in a human community. Specifically, it was pointed out that analogies exit between equity, diversity, and inclusion in a community, and optimal or unique, unified, and integrated characters, respectively, in a multi-agent mechatronic system. Ways to achieve these three desired characteristics of a multi-agent mechatronic system, in an "intelligent" manner were indicated. The end message of the article constituted:

1. The realization of a desirable multi-agent mechatronic system can be inspired by the way of achieving equity, diversity, and inclusion in a human community,
2. The realization of equity, diversity, and inclusion in a human community can be modeled through the analogous characteristics of optimal/unique outcome, unified methodology, and integrated treatment in a multi-agent mechatronic system.

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Bio Clarence W. de Silva, Professor of Mechanical Engineering at the University of British Columbia (UBC), Vancouver, Canada, has occupied several research chairs including NSERC-BC Packers Chair, Mobil Endowed Chair, and the Senior Canada Research Chair in Mechatronics and Industrial Automation. A Fellow of ASME, IEEE, Canadian Academy of Engineering, and the Royal Society of Canada, he has received many awards including the Paynter Outstanding Investigator Award and the Takahashi Education Award of ASME Dynamic Systems and Control Division; Killam Research Prize; and Outstanding Engineering Educator Award of IEEE Canada and has served as Editor/Associate Editor of 14 journals including ASME and IEEE transactions; and is the Editor-in-Chief of the International Journal Mechatronic Systems and Control. He entered the University of Ceylon from Ananda College, after winning the Dr. Erwin de Silva Gold Medal. He graduated from the University, obtaining First Class Honors and the Dr. C. H. Hewavitarana Prize in Engineering. After working several years as an Assistant Works Engineer, he went overseas. He obtained an MASc degree from University of Toronto, PhD degrees from Massachusetts Institute of Technology (MIT) and University of Cambridge, and the ScD degree, the so-called "Higher Doctorate," from University of Cambridge.

Chair's Words of ACC 2023

Xiaobo Tan

It was great to see many familiar faces from DSCD at the 2023 American Control Conference (ACC), which was held in the beautiful setting of Hilton San Diego Bayfront on May 31 to June. It was a completely in-person conference, which attracted over **1300** attendees from **40** countries, from all continents except Antarctica.

2023 ACC offered a rich and high-quality technical program over the course of the conference. A total of 1110 invited and contributed papers were submitted to the conference, including 233 submissions through the IEEE Control Systems Letters (L-CSS), and 763 papers were accepted for presentation, reflecting an acceptance rate of 68.7%. In addition, 9 tutorial sessions were offered spanning a wide range of timely topics on control, learning, optimization, game theory, and their applications. The technical sessions consisted of 15 parallel tracks of regular oral presentations and 2 parallel tracks of Rapid Interaction (RI) tracks. Furthermore, 13 pre-conference workshops were provided on May 30, which were well attended by over 250 people. 2023 ACC had one plenary talk delivered by Dr. Mrdjan Jankovic (Ford, retired) and four semi-plenary talks by Dr. Steven Brunton (University of Washington), Dr. Fumin Zhang (Hong Kong University of Science and Technology), Dr. Dennice Gayme (Johns Hopkins University), and Dr. Yongxin Chen (Georgia Tech), who was the 2022 Eckman Award recipient. The conference also included an evening public lecture, where the attendees had a unique opportunity to interact with Dr. Bob Behnken (Lockheed Martin Space), a former NASA astronaut who was a part of the NASA/SpaceX team that recreated the capability to transport humans to and from low Earth orbit.

Aside from the technical program, the conference offered ample opportunities for the attendees to mingle, catch up, and relax. The opening reception was held at the Promenade Plaza of the hotel, by the side of the picturesque San Diego Bay. The conference was closed with a dinner cruise on the Bay, where people enjoyed beautiful sunset, quality time with friends, delicious food, and an unforgettable night of great music and dancing. 2023 ACC was family-friendly. With the generous support from the American Automatic Control Council (AACC), the conference offered funds to offset the expense of dependent care and over 15 attendees received the support. It also featured two family-friendly special sessions that involved young children in engaging learning activities. The conference had a number of events focused on diversity, equity, and inclusion (DEI) and outreach, including a Women in Control luncheon, a panel on DEI, a special session on increasing recruitment and retention of students from underrepresented groups, and a workshop for middle and high school teachers and students. We were also excited to see a strong lineup of 14 sponsors and exhibitors, including both long-time ACC supporters and new faces. They enriched the conference experience through applications-focused special sessions, recruitment activities, and new initiatives such as the inaugural student competition organized by Quanser.

Preparation of a high-quality 2023 ACC would not be possible without contributions from many people. Specifically, I want to thank the authors for contributing their quality work, the foundation of the technical program; the reviewers and the Conference Editorial Board members for reviewing the submissions and providing valuable feedback. I would like to express my deepest appreciation to the phenomenal members of the Operating Committee, who worked tirelessly to bring the best possible experience for our attendees: Sean Andersson, Shaunak Bopardikar, Xiang Chen, Afef Fekih, Neera Jain, Carrie Hall, Solmaz Kia, Selina Pan, Juan Ren, Vaibhav Srivastava, Stephanie Stockar, Yan Wang, Wenlong Zhang, and Jianguo Zhao. As you can recognize, many are active members from our Division. The DSCD community has contributed to the 2023 ACC in many other ways, including organizing high-quality invited sessions, special sessions, tutorial sessions, and workshops, for which I am deeply grateful.

Talks

Plenary Talk by Mrdjan Jankovic

BoB Behnken's Public Lecture

Semi-Plenary by Dannice Gayme

Semi-Plenary by Fumin Zhang

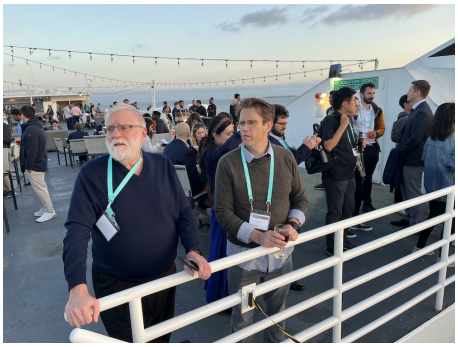
Semi-Plenary by Steve Bruce

Semi-Plenary by Yongxin Chen

Social Events

Openning Reception

Coffee Break



Closing Reception on Cruise

Student Events

Quanser Student Competition

Best Student Paper Finalists in the Award Ceremony

Women In Control (WiC)

Women In Control Luncheon

Dawn Tilbury @ WiC Luncheon

Jing Sun @ WiC Luncheon

Honors and Awards

Former Professor Huei Peng won the Honda Medal

Masayoshi Tomizuka

The Soichiro Honda Medal recognizes an individual for an outstanding achievement or a series of significant engineering contributions in developing improvements in the field of personal transportation. Attention shall be concentrated on the brilliance of the achievement or on the overall effect of a series of contributions– not on the individual. The achievement should be of such public importance as to be worthy of the gratitude of society and to call forth the admiration of engineers. As a result of a generous unrestricted donation to ASME by Honda Motor Company, Ltd., in 1980, the Society established the Soichiro Honda Medal in recognition of Mr. Honda'/s exemplary achievements in the field of personal transportation in 1983.

The Soichiro Honda Medal is an ASME society level award, and the Dynamic Systems and Control Division is not in charge of review of nominations. The Medal, however, is very relevant to the activities of DSCD, in particular, to the Automotive and Transportation Systems Panel and Energy Systems Panel. In recent years, Masayoshi Tomizuka and Huei Peng won the medal.

The nomination deadline is October 1, and nominations must be submitted to Leila Persaud of ASME (persaudl@asme.org).

For further details, see ASME website.

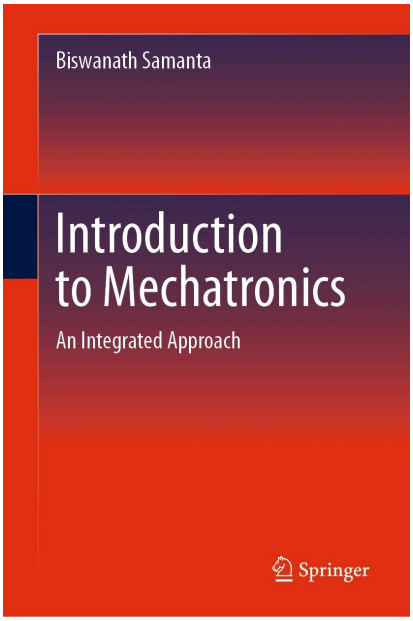
Professor Rajesh Rajamani Received Distinguished Alumnus Award

Rajesh Rajamani was selected as a 2023 recipient of the Distinguished Alumnus Award by the Indian Institute of Technology, Madras (IIT-M). This is the highest honor awarded to its alumni by IIT-M. Dr. Rajamani is the Benjamin Y.H. Liu- TSI Endowed Professor in Mechanical Engineering at the University of Minnesota.

Faculty Excellence Award for Professor Neera Jain

For the 22-23 academic year, Neera Jain was a Senior Associate at the Air Force Research Laboratory in Albuquerque, NM, supported by a National Research Council Fellowship awarded in 2022. In February 2023, she was elevated to the grade of Senior Member by the IEEE in February 2023. Finally, at Purdue, she was awarded the 2023 College of Engineering Faculty Excellence Award in Graduate Student Membership.

New Mechantronics Book



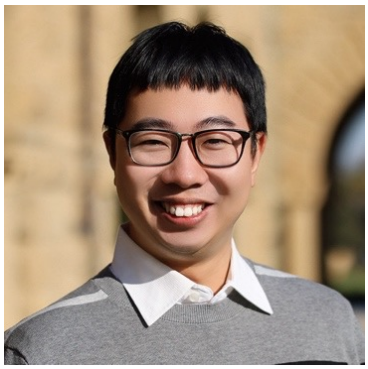
Professor Biswanath Samanta, Georgia Southern University, published a new textbook on Mechatronics. Samanta, B., Introduction to Mechatronics–An Integrated Approach, Springer, 2023, ISBN 978-3-031-29319-1.

Professor Marcia O'Malley Steps Up as the Department Chair

Marcia O'Malley will assume the role of Chair of the Department of Mechanical Engineering at Rice University on July 1, 2023. She previously served as Associate Dean for Research and Innovation in the George R. Brown School of Engineering at Rice University.

New Faces Spotlight

Jiachen Li



Dr. Jiachen Li is an incoming assistant professor in the Department of Electrical and Computer Engineering and the Department of Computer Science and Engineering (courtesy) at the University of California, Riverside. He is the director of the Trustworthy Autonomous Systems Laboratory (TASL). Prior to joining UCR, he was a postdoctoral scholar at Stanford University. He received a Ph.D. degree in engineering from the University of California, Berkeley and a B.S. degree in automation from Harbin Institute of Technology. During his Ph.D. study, he worked as a research intern at Waymo, Honda Research Institute, and Toyota Research Institute. Dr. Li was selected as an RSS Robotics Pioneer in 2022. He serves as an associate editor or a reviewer for over 25 premier journals and conferences. He has organized multiple workshops on robotics, machine learning, computer vision, and intelligent transportation systems at premier international conferences, including ICRA, IROS, NeurIPS, ICCV, IV, and ITSC. More details about his research and activities can be found at https://jiachenli94.github.io/.

Dr. Li's research interest lies in the broad intersection of robotics, trustworthy AI & ML, reinforcement learning, control and optimization as well as their applications to intelligent autonomous systems (e.g., autonomous vehicles, mobile robots, drones, cyber-physical systems), especially human-robot interactions and multi-agent systems. His group is currently seeking highly motivated talents to work on various topics related to robotics and autonomous systems.

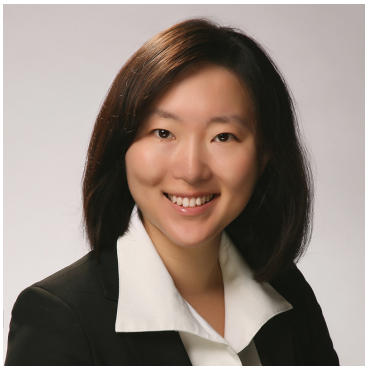
Pan Zhao

Pan Zhao will join the Department of Aerospace Engineering and Mechanics at the University of Alabama (UA) as an Assistant Professor in Aug 2023. He is currently a postdoctoral researcher in the Department of Mechanical Science and Engineering at the University of Illinois at Urbana-Champaign. He obtained his B.E. degree in Automation and M.E. degree in Mechatronics Engineering from Beihang University, China, in 2009 and 2012, respectively. In 2018, he earned his Ph.D. degree in Mechanical Engineering from the University of British Columbia, Canada. Prior to his doctoral studies, Dr. Zhao worked as a Modeling and Simulation Engineer at Hirain Technologies.

Dr. Zhao's research interests encompass a broad range of topics, including nonlinear, robust, and adaptive control, machine learning, resilient autonomy, robotics, and aerospace systems. In his role at UA, he will establish and lead the Control and Intelligent Systems Lab (CISL), an exciting research group dedicated to advancing the frontiers of reliable control and autonomous systems with applications in aerospace, robotics, and renewable energy. The CISL currently has fully funded Ph.D. positions starting in Spring 2024 or Fall 2024.

Beyond his professional pursuits, Dr. Zhao enjoys engaging in various recreational activities. He finds solace in hiking, exploring new destinations through travel, competing in soccer and table tennis, and practicing taiji and meditation to promote mindfulness and balance.

Yorie Nakahira



Yorie Nakahira has started her appointment at Carnegie Mellon University as an Assistant Professor in the Department of Electrical and Computer Engineering. She received B.E. in Control and Systems Engineering from the Tokyo Institute of Technology and Ph.D. in Control and Dynamical Systems from the California Institute of Technology. Her research interests are control, optimization, learning, autonomous robots, neuroscience, bio-inspired design, and human-machine interaction. Her group's recent projects include: Assurance of long-term safe probability using myopic controllers; When safe control results in greater risk?; Physics-informed neural networks to generalize beyond sampled data; How to certify safety against la-

tent risks; and Microfinance and poverty reduction as new control applications.

Guanya Shi

Guanya Shi (http://www.gshi.me/) is an incoming (Fall 2023) Assistant Professor at the Robotics Institute at Carnegie Mellon University (CMU). He is currently a postdoctoral scholar at the Paul G. Allen School of Computer Science and Engineering at the University of Washington. He completed his Ph.D. in 2022 from Caltech CDS and received a B.E. from Tsinghua University in 2017. He is broadly interested in the intersection of machine learning and control theory, spanning the entire spectrum from theory to real-world agile robotics. He has developed safe and adaptive decision-making methods not only with theoretical guarantees but also enabling new capabilities in agile robotics, such as precise flight control in challenging wind conditions and agile jumping of legged robots. Guanya was the recipient of several awards, including the Simoudis Discovery Prize and the Ben P.C. Chou Doctoral Prize from Caltech, and the Rising Star in Data Science from the University of Chicago.

Shuang Cui

Dr. Shuang (Cynthia) Cui currently is an assistant professor in the Department of Mechanical Engineering at the University of Texas at Dallas (UTD) and also a joint faculty in the Buildings and Thermal Sciences Center at the National Renewable Energy Laboratory (NREL). Prior to that, Dr. Cui was a research scientist at NREL. She received her Ph.D. in Mechanical Engineering at the University of California, San Diego. Dr. Cui directs the Thermal Energy Materials and Processes (TEMP) Lab at UTD. Her research focuses on both the fundamental study of nanoscale heat transfer and energy conversion and advanced materials/system development and control, spanning intelligent soft materials/devices and advanced energy storage materials and systems. She collaborates with scientists and engineers from diverse fields including mechanical, electrical, chemical, and civil engineers, material scientists, and chemists to pursue her research projects on thermal metrology development for nanomaterials and smart materials for thermal regulation, energy storage, water harvesting, and desalination. Her research has been supported by multiple federal agencies (DOE BTO, AMO, TTO, ARPA-E, NSF, NREL, and UTD) and private sector partners (Wells-Fargo) leading to 25 peer-reviewed journal articles and 6 patents. Dr. Cui received the President's Award for Exceptional Performance at NREL. She is also highlighted by the Department of Energy's (DOE) "Women Energy: STEM Rising" and has been a selected participant of the 2019 U.S. C3E Women in Clean Energy Symposium at Texas AM University and The Rising Stars Women in Engineering Workshop at Seoul National University (Korea). She loves painting and skiing. She will continue her research on the development of green, intelligent, and energy-efficient living systems.

Editorial Board

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 or through this google form (https://forms.gle/dhVsP5DofPsjkJkr5):

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Associate Editor: Minghui Zheng, University at Buffalo, mhzheng@buffalo.edu

Cover image courtesy: Matt Crisara, www.popularmechanics.com

Interview with Recent NSF CAREER Awardees

Stephanie Stockar

Bio: Stephanie Stockar is an Assistant Professor in the Department of Mechanical and Aerospace Engineering. She is affiliated with the Ohio State Center for Automotive Research (CAR) and the Sustainability Institute. Dr. Stockar is a 2021 NSF CAREER Award recipient, she earned the SAE Ralph Teetor Educational Award (2021), and the Ralph E. Powe Junior Faculty Enhancement Award in Engineering and Applied Science (2020).

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

A: Thank you! The goal of the project is to improve energy use in transportation and in the built environment through the creation of a new mathematical framework to solve optimal control problems with input and state constraints in systems described by Partial Differential Equations.

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

A: Great question and I wish I had a good and general answer. Beyond having a solid and impactful research idea, and a well-structured educational plan, I think the proposal should reflect the excitement of the PI. Afterall, the proposal tries to answer the question "what do you want to do when you grow up?".

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

A: There are many opportunities for making significant contributions in the area of optimization and control. For example, advancements have been made in the integration of physics-based with data driven approaches for both modeling, and control applications. But there is still a lot to be explored. I also believe that very interesting problems are found when discussing the practical problems that the Industry is facing.

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

A: After completing my PhD, I spend few years as Postdoctoral Researcher before transitioning to a Tenure Track Faculty position. I moved to another University the year before the pandemic, which was quite the challenge. My research group is composed by a mix of PhD, MS and Undergraduate Students, and in December of 2021 I graduated my first PhD student.

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: That is a great question. I have started as a new faculty member twice and in both cases I was fortunate enough to have wonderful colleagues and made things easier. At the same time, being involved with professional societies is a great way to support and grow our community beyond what we could do as individuals.

Q. Thank you for your sharing!

A: Thank you for the opportunity and for the great work with the Newsletter.

Upcoming Conferences

IEEE International Automated Vehicle Validation Conference 2023

Austin, TX, USA, October 16 - October 18, 2023

https://2023.iavvc.org

7th IEEE International Conference on Industrial Cyber-Physical Systems

St. Louis, USA, May 12-15, 2024

icps2024.ieee-ies.org

2024 European Control Conference

Stockholm, Sweden, June 25-28, 2024

https://ecc24.euca-ecc.org/

ecc24
EUROPEAN CONTROL CONFERENCE

2024 American Control Conference

Toronto, Canada, July 8-12, 2024

https://acc2024.a2c2.org/

ACC 2024

2024 IEEE/ASME International Conference on Advanced Intelligent Mechatronics

Boston, MA, USA, July 15-18, 2024

https://aim2024.org/

AIM 2024
BOSTON

6th Annual Learning for Dynamics Control Conference

University of Oxford, UK, July 15-17, 2024

https://l4dc.web.ox.ac.uk

2024 International Symposium on Mathematical Theory of Networks and Systems

Cambridge, UK, August 19-23, 2024

https://mtns2024.eng.cam.ac.uk

8th IEEE Conference on Control Technology and Applications

Newcastle upon Tyne, UK, August 21-23, 2024

https://ccta2024.ieeecss.org/

IEEE CCTA 2024
8th IEEE Conference on Control Technology and Applications
August 21–23, 2024
Northumbria University, Newcastle upon Tyne, United Kingdom

Openings

The IEEE RAS Technical Committee on Telerobotics (TCT)

The IEEE RAS Technical Committee on Telerobotics (TCT) aims at concentrating the main achievements and researchers on telerobotics and promoting development of new activities in this field. The topics of interest include:

- Control of Telerobotic Systems
- Telepresence/Telexistence and Sensory feedback
- Internet-based teleoperation
- Applications in industrial environments, aerospace, surgery, entertainment, defense, rehabilitation, etc.

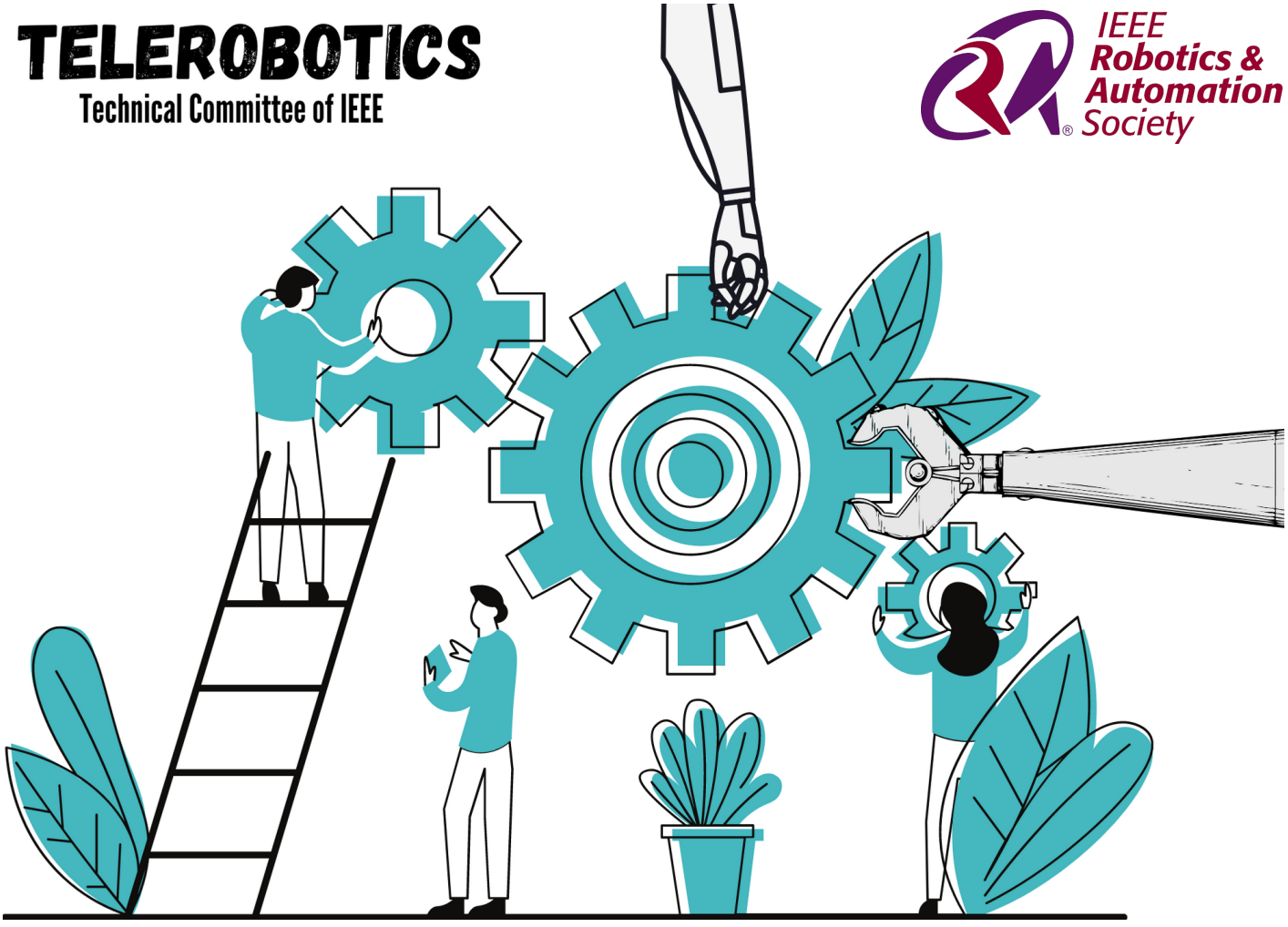
Technical committee webpage on IEEE RAS: `https://www.ieee-ras.org/telerobotics`

For further inquiry/questions for the interested DSCD members, please contact Alireza Mohammadi, amohmmad@umich.edu.

Research Opportunities at the University of California, Riverside

The Trustworthy Autonomous Systems Laboratory (TASL) directed by Prof. Jiachen Li at the University of California, Riverside (UCR) are currently seeking multiple highly motivated talents to join the lab as Ph.D. students (fully funded), master students, undergraduate students, in-person/remote research interns (outside of UCR), visiting scholars, or postdoctoral scholars. Research topics include, but are not limited to, human-robot interaction / collaboration, multi-agent learning planning (e.g., coordination, collaboration), trustworthy AI / ML (e.g., explainability, safety, robustness), deep reinforcement learning & controls, socially aware autonomous navigation (e.g., autonomous vehicles, mobile robots), and intelligent transportation systems & smart city.

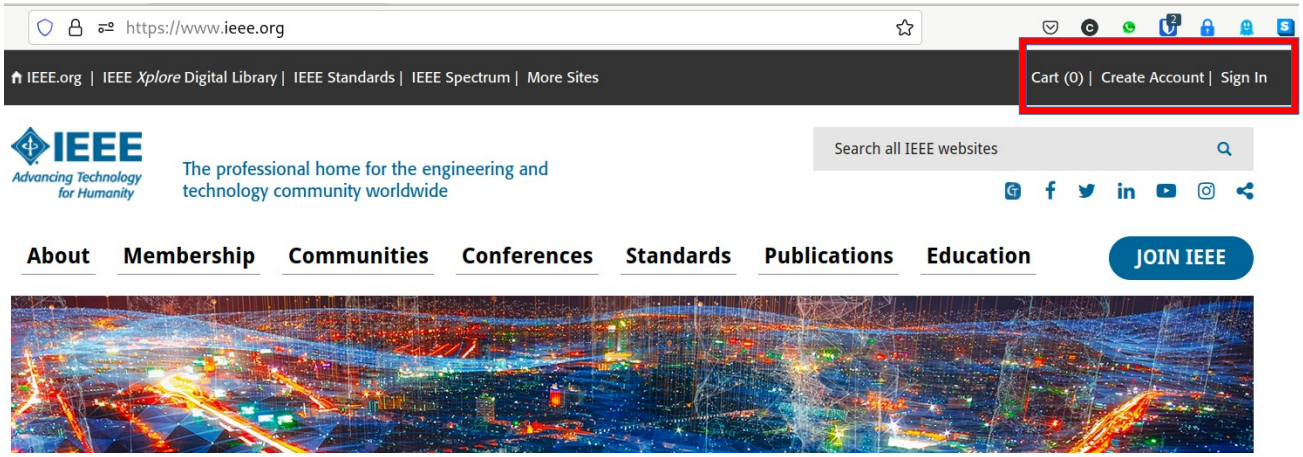
More information about the research opportunities can be found at Prof. Li's personal website (https://jiachenli94.github.io/). If interested, please follow the application instructions in the "Join My Lab" section on his personal website. Please direct any questions to jiachen.li@ucr.edu.



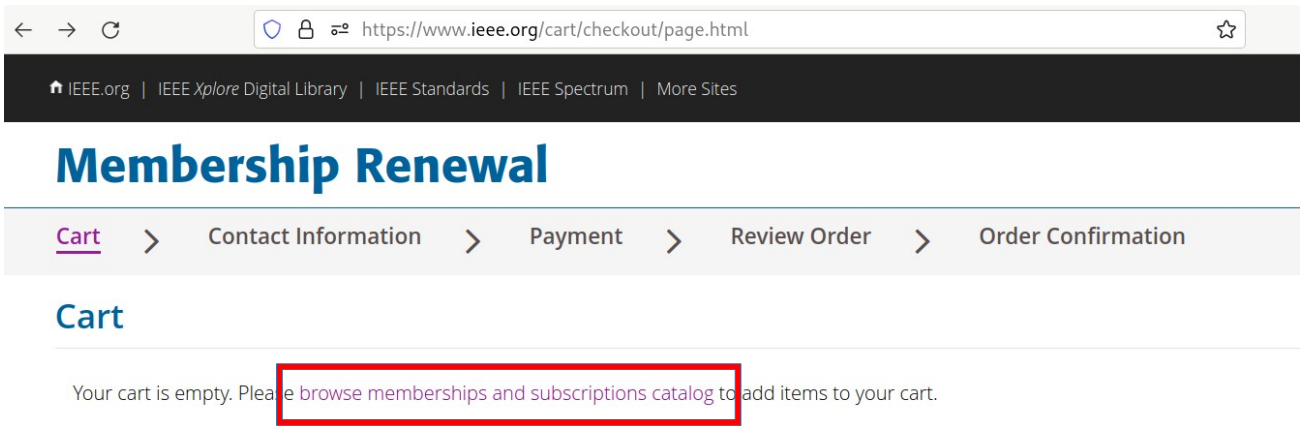
How to register to the IEEE RAS Technical Committee on Telerobotics (TCT)

1. Go to https://www.ieee.org/

2. “Sign in” to your account (or “Create an Account” if you do not have an IEEE account)



3. Clicking on “Cart”, you can access the “memberships and subscriptions catalog” (also accessible at http://www.ieee.org/go/shop)



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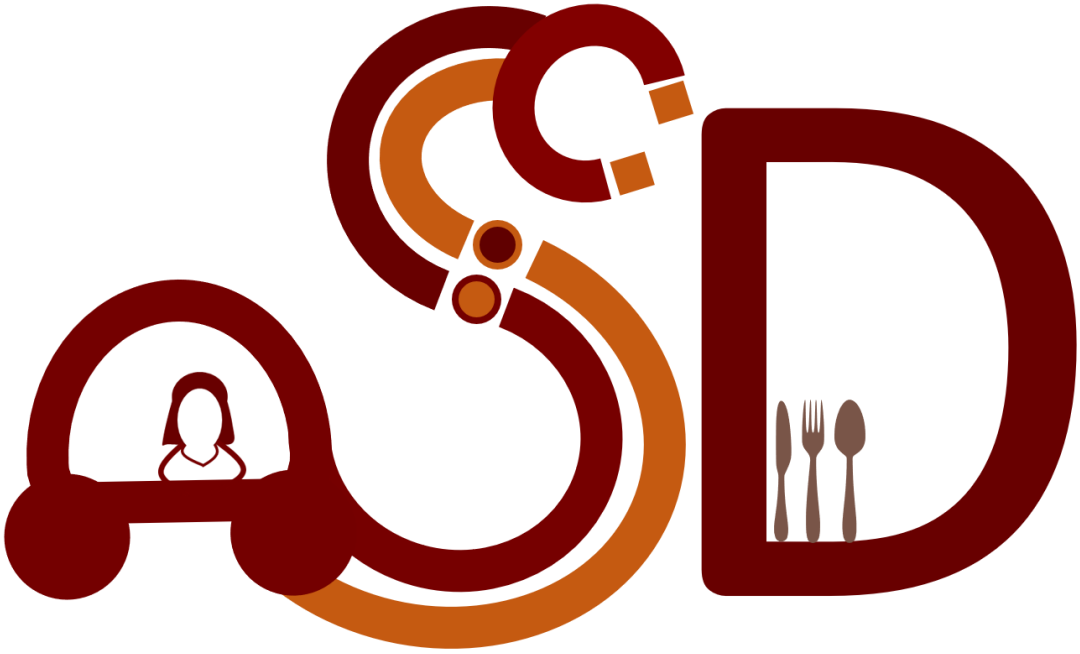

ASME DSCD Women Luncheon

@ MECC 2023

Sponsored by ASME Dynamic Systems and Control Division (DSCD)

Stay Tuned!!
Questions to mhzheng@buffalo.edu

7th IEEE International Conference on Industrial Cyber-Physical Systems

ICPS 2024

May 12-15, 2024, St. Louis, USA

Website: icps2024.ieee-ies.org




CALL FOR PAPERS

The 7th IEEE International Conference on Industrial Cyber-Physical Systems (ICPS) will be held from Sunday to Wednesday**, May 12-15, 2024**, St. Louis, MO, USA.

ICPS 2024 aims to provide an international platform for cutting edge research and professional interactions for the development of Industrial Cyber-Physical Systems. Industry experts, researchers and academics will share ideas and experiences surrounding frontier technologies, breakthroughs, innovative solutions, research results, as well as initiatives related to Industrial Cyber-Physical Systems and their applications. The conference will feature a rich program including industry talks, research papers, as well as workshops and special sessions.

A number of Special Sections in leading IEEE Journals such as TII, TICPS, OJIES and JESTIE, elaborating conference topics will be generated after the event. Authors of accepted papers, with excellent reviews, will be invited to submit an improved version of their papers for further consideration.

Topics within the scope of the conference (but not limited to):

- **ICPS Architectures & Engineering:** Industry Architectures, Industry Standards, I4.0 / RAMI 4.0, Industrial IoT, Engineering Methods and Tools, Lifecycle Management, Integration, HMI, Safety, Engineering Systems of Systems, Standards, Development/Engineering Best Practices
- **ICPS Theory and Technologies:** Core Technologies, Interoperability, Communication Networks, Connectivity OT/IT, Semantics, Control, Information Processing, IoT/IoS, Autonomous Systems, Cloud-Fog-Edge Computing, Big/Smart Data, Security & Trust, Simulations
- **ICPS Applications:** Smart Manufacturing, Robotics, Smart Cities, Energy / Smart Grid, Smart Living, Smart Framing, Mobility, Water Management, Mining, Oil & Gas, Intelligent Enterprise, Smart Transportation, Internet of Underwater Things, Smart Medical Systems
- **ICPS Education, Management, and Society:** Digital Skills, Education Curricula, Lifelong Learning & Training, Digital Society, Future of Work, Innovation Management, Visions/Roadmaps, Industry Digitalization, Strategies & Markets, Entrepreneurship, Strategic Impact, Societal Implications, Sustainability, Machine Ethics
- **Artificial Intelligence in ICPS:** Generative AI, Metaverse, LLMs, NLP, AI Explainability, Edge AI, Neuromorphic Computing, Foundation Models, Synthetic Data, Industrial Experiences

Special Sessions: Prospective participants of ICPS 2024 are encouraged to propose (and upon approval organize) special sessions in the focus areas under the symposium topics.

Tutorials: Several tutorials are planned on the latest trends in ICPS. Prospective speakers should apply asap.

Important Dates

Special Session Proposal:	Oct. 16, 2023
Full Paper Submission:	Nov. 17, 2023
Tutorial Proposal:	Dec. 15, 2023
Decision Notification:	Jan. 19 , 2024
Early Registration:	Mar. 1, 2024

Paper Submission:

Prospective paper authors are requested to electronically submit full papers in English following the instructions available on the conference website. Accepted and presented papers will be copyrighted by IEEE and published in conference proceedings, which will be eligible for inclusion in the IEEE Xplore online Digital Library and EI Compendex database.

St. Louis is the second-largest city in Missouri, United States. It is located near the confluence of the Mississippi and the Missouri Rivers. Travelers looking for cosmopolitan fun, excitement and adventure will discover a great fit in St. Louis. Located in the midwestern USA, St. Louis is sophisticated yet affordable with a variety of attractions, exhibits and cuisine, all wrapped in a friendly, diverse atmosphere.

Contact Email:
icps2024@ieee-ies.org

ACC 2024

2024 American Control Conference
July 8-12, 2024 || Toronto, Canada

CALL FOR PAPERS

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The 2024 American Control Conference (ACC) will be held Monday through Friday, July 8-12, 2024 in Toronto, ON, Canada at the Westin Harbour Castle. Toronto is Canada's largest city and a world leader in such areas as business, finance, technology, entertainment and culture. Its large population of immigrants from all over the globe has also made Toronto one of the most multicultural cities in the world.

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

The 2024 ACC technical program will comprise several types of presentations in regular and invited sessions, tutorial sessions, and special sessions along with workshops and exhibits. For contributed and invited papers, authors will have the option to present to a larger audience in a rapid-interactive (RI) format. Submissions are encouraged in all areas of the theory and practice of automatic control.

Contributed Papers: ACC Papers are invited in the form of regular manuscripts (allotted 6 proceedings pages and up to 8 pages with additional page charge). Submissions to L-CSS have the option for presentation at ACC (note: L-CSS papers have a strict 6 page limit). Papers must conform to the submission policies, detailed on the conference and journal web pages. All manuscripts should be written in English, be in 2-column format, and meet strict page limits.

Invited Sessions: Invited sessions consist of 6 papers (up to 8 pages with additional page charge) presenting a unifying theme from a diversity of viewpoints. Proposals must clearly describe the motivation and relevance of the session.Proposals must be accompanied by full versions of each paper, which will be individually reviewed together with the proposal itself.

Tutorial Sessions: Tutorial sessions are a special category of invited sessions organized to provide an introduction to a topic of interest. The format is structured around a main tutorial paper (up to 18 pages) and talk (60 minutes) to bring the participants up to speed, followed by three presentations (with or without papers of up to 6 pages each) to give a picture of the state of the art. Tutorial sessions involving strong industry and academic collaboration are highly encouraged.

Special Sessions: Special sessions offer a venue for creating awareness of, and providing exposure to emerging research areas, research and funding opportunities, and other topics of broad interest to attendees. History and industry-sponsored sessions also fall into this category.

Workshops: Workshops to be held prior to the conference are solicited on all related topics. Proposals for workshops addressing novel control methodologies and nonstandard control applications, as well as workshops with strong tutorial value are encouraged.

Exhibits: Exhibitors are invited to showcase, demonstrate and market control-related publications, software tools, educational products, services, and jobs. Exhibits are open throughout the conference to all attendees of the ACC.

All papers and session and workshop proposals must be submitted through the conference submission website. Submissions must conform to the policy found at the conference website: **http://acc2024.a2c2.org/**

Important Dates

L-CSS option Submission	ACC Manuscript Submission	Acceptance/Rejection Notice	Final Manuscript Submission
September 8, 2023	September 22, 2023	January 22, 2024	March 13, 2024

2024 IEEE/ASME International Conference on Advanced Intelligent Mechatronics

July 15th - 18th , 2024 | Boston, MA, USA

The 2024 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM2024) will be held on **July 15-18, 2024 in Boston, MA, USA** (https://aim2024.org/). As the flagship conference on intelligent mechatronic systems, AIM 2024 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 2024 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/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, Optomechatronics, 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 IEEEXplore, 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.1
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 do not fit in 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 AIM2024. (1) *Presentation Only:* All authors of TMECH papers accepted between Feb. 16, 2023 and Feb. 15, 2024 have the option to present their work during the conference. (2) *Focused Section:* Submissions to the 5th Edition of the Focused Section on TMECH/AIM Emerging Topics will go through the TMECH review process and, if accepted, are presented at AIM2024 and published as part of the focused section in the August 2024 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 2024 for inclusion in AIM2024 as a contributed paper. Details are available on a supplemental call for papers available on the conference website: https://aim2024.org/ and the TMECH website http://www.ieee-asme-mechatronics.info/.

IMPORTANT DATES:

TMECH/AIM Focused Section:	January 1, 2024
Invited/Workshop/Special Session Proposals:	January 27, 2024
Contributed and Invited Papers and TMECH Presentation Only:	February 8, 2024
TMECH/AIM First Decision:	March 1, 2024
TMECH/AIM Revisions:	March 25, 2024
Notification of AIM and TMECH/AIM Paper Status:	May 1, 2024
Final Paper Submission:	May 10, 2024
Late-Breaking Submission:	May 16, 2024

IEEE/ASME TRANSACTIONS ON MECHATRONICS

Call for Papers

The Fifth 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 2024, and will be presented in the 2024 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM 2024, www.aim2024.org). The rejected papers from the submissions will be transferred to the Program Committee of AIM 2024 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 2024 concurrently for presentation only, with full information of the paper included in the preprinted proceeding of AIM 2024. The final publication in TMECH, however, will be subject to the completion of presentation in AIM 2024 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 2024 for further consideration. A final Accept/Reject decision will then be made by the Committee as a conference contributed paper for AIM 2024.

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 2024 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, 2023
Closing Date of TMECH/AIM FS Submission Site (first submission):	January 1, 2024
Full Information of TMECH/AIM FS Paper Submitted to AIM Site:	January 1, 2024
First Decision for TMECH/AIM FS Submission:	March 1, 2024
Revised TMECH/AIM FS Submission Due by:	March 25, 2024
Final Decision for TMECH/AIM FS Submission:	May 1, 2024
Final Version of TMECH/AIM FS Submission Due by:	May 20, 2024
Publication of Focused Section in TMECH:	August 2024

Contacts: For any questions related to this Call for Paper, please contact:
Qingze Zou, qzzou@soe.rutgers,edu, Senior Editor of TMECH,
Yan Wan, yan.wan@uta.edu, Program Co-Chair of AIM 2024.