

CCTA 2017—The Inaugural IEEE Conference on Control Technology and Applications

Several years ago, the IEEE Control Systems Society (CSS) made the difficult decision to discontinue the annual Multi-Conference on Systems and Control (MSC), with the last edition to be held in Buenos Aires in September 2016. In line with that decision, in 2013, the CSS leadership reached out to potential organizers and made a request to the eventual general chair of what became the first installment of a new event in 2017. Discussions at that time centered on a new conference with a focus on control technology and its applications. The first conference was held on the Big Island of Hawaii along the Kohala coast on Sunday through Wednesday, August 27–30, 2017.

In conceiving the idea for this conference, CSS leadership set the bar high, focusing on making the inaugural event one of notable high quality in its technical program as well as a memorable event for attendees in all other aspects. This focus, therefore, became the primary goal of the 2017 IEEE Conference on Control Technology Applications (CCTA) organizers. With appeals to many high-profile CSS researchers and colleagues from across the globe, quality in the theme-based technical program was greatly enhanced with participation from many individuals in terms of workshops, invited session organization, and promotion of contributed articles.

Because this was a new event with no history or foundation upon which to build, CSS leadership and CCTA 2017 organizers anticipated an attendance



General Chair Steve Yurkovich welcoming attendees.



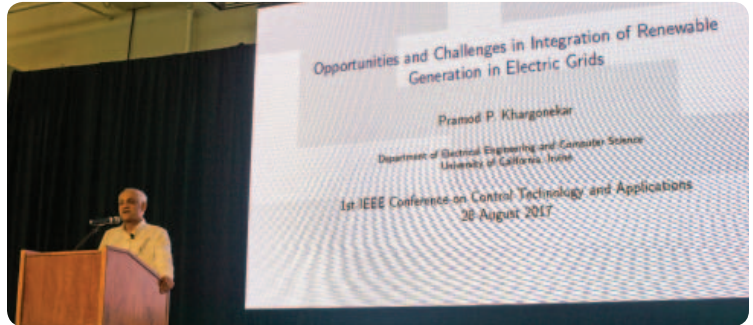
A Welcome Reception near the beach at sunset.

along the lines of an average-sized MSC in previous years. However, with an intense promotion effort to spread the word and many appeals to seed submissions, CCTA 2017 significantly surpassed expectations. In addition to

setting a standard for future CCTAs in terms of technical quality, CCTA 2017 was well attended with 479 total registrants, 185 of which were student registrants (39%), with relatively few no-shows in the program. This turnout



(From left) Mark Spong, Mario Rotea, and Steve Yurkovich, enjoying the Welcome Reception.



Pramod Khargonekar presenting his plenary talk.

represents a healthy ratio of 4:3 in terms of registrants to technical articles. For attendees, several innovations were implemented to create an enjoyable atmosphere for the sharing of progress in control technology and applications. The Mauna Lani Bay Hotel and Bungalows turned out to be the perfect setting to host this first-ever CCTA.

TECHNICAL PROGRAM

Program Chair Mark Spong, with help from Program Cochair Mario Rotea and a very strong Program Committee, put together an outstanding technical program of 49 contributed sessions and 14 invited sessions organized into eight parallel tracks over three days. Major themes of the conference included energy systems, automotive and aerospace applications, robotics, mechatronics, and biomedical applications of control.

A total of 461 contributed and 96 invited papers were submitted, and 292 contributed and 84 invited papers were accepted. The 55-member CCTA Program Committee solicited more than

3,000 reviews in a very rigorous evaluation. The acceptance rate for contributed papers was 63%. In addition, the CCTA Organizing Committee received 24 student paper award nominations and 36 student travel grant applications. Three plenary sessions and an evening panel discussion on industry/academia collaboration rounded out the program. Over 39 countries were represented at the conference, with the largest number of accepted papers coming from the United States with 136, Japan with 45, Germany with 27, Norway with 20, and South Korea with 13. A major highlight of the conference was two special sessions organized by Kishan Baheti from the National Science Foundation, “NSF Career Awardees: Emerging Research in Smart Grid” and “NSF Career Awardees: Emerging Areas in Systems and Control.”

Pramod Khargonekar from the University of California, Irvine, opened the conference with his plenary talk, “Opportunities and Challenges in Integration of Renewable Generation in Electric Grids.” Giorgio Rizzoni from

The Ohio State University presented the other invited plenary talk, “Connected and Automated Vehicle and Powertrain Control Technologies to Achieve Unprecedented Fuel Economy Gains.” Petros Ioannou from the University of Southern California presented the CSS Transition to Practice Award lecture, “Connected Vehicles: Closing the Loop with the Highway.”

PRECONFERENCE WORKSHOPS

The 2017 IEEE CCTA held three successful preconference workshops. A tutorial-style, half-day workshop, “Fault Diagnosis in Complex Systems Using Structural Analysis, and Application to Automotive Functional Safety,” was given by Dr. Giorgio Rizzoni for 17 registered attendees. This workshop presented an overview of model-based approaches to this topic, including structural analysis-based fault diagnosis, residual generation, threshold selection, and a case study in automated manual transmissions. A full-day workshop, “Guidance, Navigation, and Control Applications in the Aerospace



Past and current IEEE Control Systems Society presidents at the Welcome Reception (from left): Tariq Samad, Steve Yurkovich, Christos Cassandras, Ed Chong, and Frank Doyle.



Program Chair Mark Spong introducing the keynote speaker.



2016 CSS Transition to Practice award recipient Petros Ioannou presenting his keynote.

Industry: Current Problems and Modern Solutions,” was organized by Dr. Richard Hull (UTC Aerospace Systems), with eight speakers from industry and academia for 19 registered attendees. This workshop covered current guidance, navigation, and control topics for manned and unmanned aircraft, guided missiles, space launch vehicles, satellites, and precision-guided projectiles. A full-day workshop, “Cyber Cycles for the Internet of Things,” was organized by Dr. Fumin Zhang (Georgia Institute of Technology) and Dr. Qingshan Jia (Tsinghua University), with seven speakers from industry, academia, and government laboratories for 15 registered attendees. This workshop covered influential ideas and technologies regarding the fast-developing Internet of Things (IoT), revealing the trends in the IoT domain and its relevance to the control community.

CONFERENCE EVENTS OPEN TO ALL

Attendees of CCTA 2017 were treated to not-so-typical welcome and closing receptions, held near the beach with a view of the sunset on the Pacific Ocean and under the stars. More than 300 conference goers attended the Tuesday evening banquet, and the CSS Awards Ceremony was well attended on Tuesday morning. This awards gathering featured CSS President Edwin Chong and 2016 CSS Past-President Frank Doyle presenting awards to 1) the 2016 Transition to Practice Award recipient, 2) CCTA 2017 Best Student Paper Award finalists and the winner, and 3) the CSS Video Clip Contest recipients. Technical sessions began with plenaries and keynote presentations at 8:30 a.m. each day, carrying into eight parallel sessions lasting until 6:00

p.m. on Monday and Tuesday. Technical sessions concluded at 3:30 p.m. on the last day (Wednesday), followed by a well-attended closing reception.

Attendees were treated to beverages at the welcome reception and a grab-and-go lunch option on Tuesday (all subsidized by the conference). Coffee breaks provided a collegial outdoor atmosphere with food and beverages during the morning and afternoon each day, and the closing reception offered do-it-yourself “s’mores” with fire pits on the sandy beach.

ACKNOWLEDGMENTS

Organizing a successful conference, particularly a brand new event for the first time, requires a tremendous amount of effort by many people. CCTA 2017 was fortunate to have a small but dedicated group of very capable individuals who played important roles in its success. Besides the tremendous job done by Program Chair Mark Spong [University of Texas (UT), Dallas], with help from Coprogram Chair Mario Rotea (UT Dallas) and the Program Committee, there were other roles deserving acknowledgment. Registration was handled flawlessly by Prof. Simona Onori (Clemson University); Prof. Oscar Gonzalez (Old Dominion University) lent his experience as Publications chair; Enrique Barbieri (University of North Texas) performed



CSS President Ed Chong presenting the Best Student Paper Award to Harikesh Arunachalam (Clemson University).



CSS President Ed Chong presenting awards to the recipients of the CSS Video Clip Contest, Jiří Zemánek and Martin Gurtner (Czech Technical University in Prague).



At the IEEE Control Systems Society (CSS) Awards Ceremony, CSS President Ed Chong expresses appreciation to General Chair Steve Yurkovich.



General Chair Steve Yurkovich with Publications Chair Oscar Gonzalez.

the duties of Finance chair; Gary Yen (Oklahoma State University), as Events chair, helped organize the student travel grant recipients and room sharing; and Robert Gregg (UT Dallas) was Workshops chair. Consultation and advice were provided by the honorary chair, Karl Astrom, as well as Advisory Board members Tariq Samad, Yutaka Yamamoto, and Bruno Siciliano, representing CCTA 2017 sponsors, IEEE CSS, SICE, and the IEEE Robotics and Automation Society, respectively.

The general chair had personal ties to the CCTA 2017 through his immediate family. Tricia Yurkovich, Steve's wife for more than 40 years, provided moral support as well as advice for the many months leading up to the conference but also designed and handcrafted special gifts given to select conference VIPs. Steve's two sons were authors of articles in the conference, and both contributed greatly to the success of CCTA 2017: B.J. Yurkovich (Technicity and The Ohio State University) designed and maintained the conference webpage and handled on-site technology enhancements; and James Yurkovich (doctoral student at the University of California, San Diego) was responsible for all photography (including the photos in this article), along with the design of the poster



Giorgio Rizzoni presenting his plenary talk.

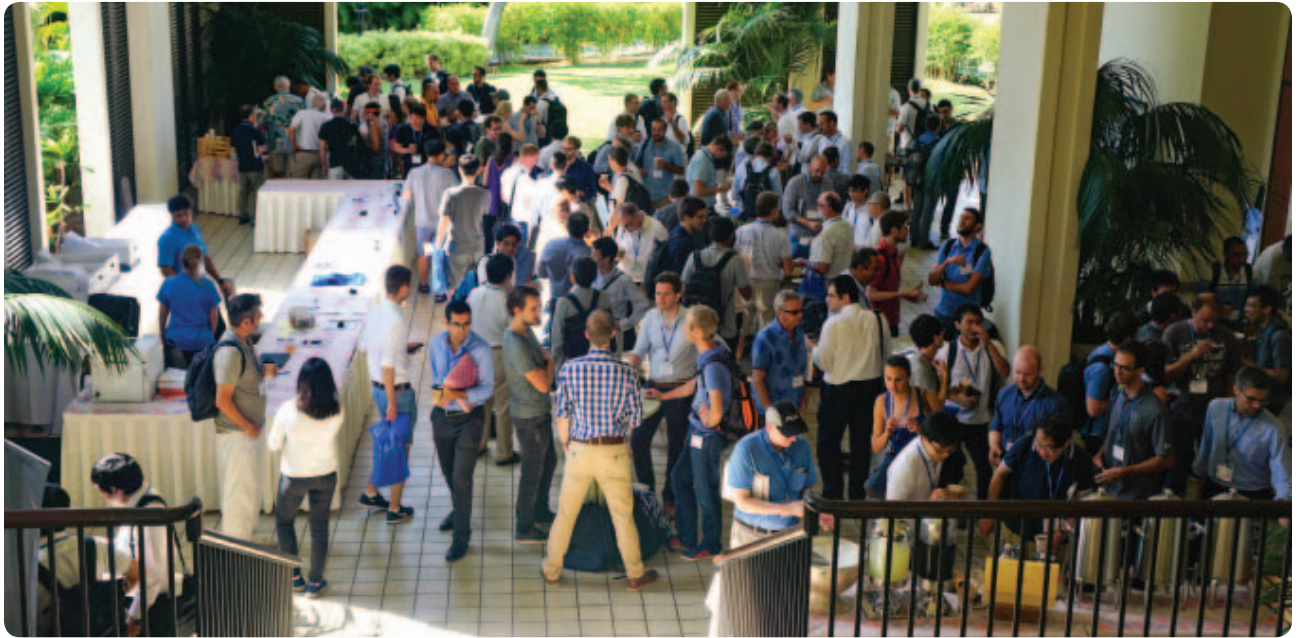


The Closing Reception near the beach before sunset.

boards outside session rooms at the conference.

Finally, much gratitude is due to the local arrangements coordinator, Kathryn Owens, as well as to Leiane Davis, both of

UT Dallas. Gratitude is also due to the four student helpers: Moinak Pyne and Saurav Kumar (UT Dallas), Harikesh Arunachalam (Clemson University), and Danny Freudiger (The Ohio State University).



A coffee break at the conference site.

CCTA 2018

The next edition of CCTA will be organized by General Chair Jakob Stoustrup, from Aalborg University.

CCTA 2018 will take place August 21–24, 2018 at The Scandic Hotel Copenhagen in Copenhagen, Denmark. More information on CCTA

2018 can be found at <http://ccta2018.ieeecss.org/>.

Steve Yurkovich

The 2017 Summer School on Sliding Mode Control

The 2017 International Summer School on Sliding Mode Control took place at the Institute of Automation and Control, Graz University of Technology, Austria, September 4–8, 2017. The summer school was organized by Martin Horn, Martin Steinberger (Graz University of Technology), and Leonid Fridman (Universidad Nacional Autónoma de México). It was supported by the IEEE Control Systems Society (CSS) Technical Committee on Variable Structure and Sliding Mode Control. The school is the first stage of preparation for the 15th International Workshop on Variable Structure Systems, which will take place in Graz, Austria, June 9–11, 2018 (see www.vss-graz.com).

The goal of the school was to promote basic techniques and recent results of sliding mode control and observation among students and re-

searchers from Europe. The 22 participants came from universities and companies (Samsung SDI Battery systems, LAM Research, Virtual Vehicle,



Summer school speakers (from left): Martin Steinberger, Leonid Fridman, Markus Reichhartinger, Bernard Brogliato, Martin Horn, Antonella Ferrara, and Jaime Moreno.

Digital Object Identifier 10.1109/MCS.2017.2766328
Date of publication: 19 January 2018