PROCEEDINGS OF THE 8TH INTERNATIONAL CONFERENCE ON CONTROL, DYNAMIC SYSTEMS, AND ROBOTICS (CDSR'21)

May 23, 2021 - May 25, 2021 | ~~Niagara Falls, Canada~~ | Virtual Conference

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WELCOME MESSAGE FROM THE CONFERENCE CHAIR

On behalf of the International Academy of Science, Engineering and Technology (International ASET Inc.), the organizing committee would like to welcome you to the 8th International Conference of Control, Dynamic Systems, and Robotics (CDSR'21).

CDSR'21 is aimed to become one of the leading international annual conferences in fields related to traditional and modern control and dynamic systems. This conference will provide excellent opportunities to the scientists, researchers, industrial engineers, and university students to present their research achievements and to develop new collaborations and partnerships with experts in the field.

CDSR'21 is a series of international conferences which are held yearly. These conferences focus on all aspects of traditional and modern control and dynamic systems. Due to COVID-19, we have made the decision to hold the 8th International Conference of Control, Dynamic Systems, and Robotics (CDSR'21). virtually this year.

In the eighth meeting of this conference, five keynote speakers will share their expertise with the aim of exposing participants to a wide spectrum of applications, and to foster crosspollination of ideas and develop new research interests. In addition, approximately 15 papers will be presented from professors, students, and researchers across the world.

We thank you for your participation and contribution to the 8th International Conference of Control, Dynamic Systems, and Robotics (CDSR'21). We wish you a very successful and enjoyable experience.

Dr. Aparicio Carranza
Conference Chair
CDSR'21

Dr. Yang Shi
Conference Co-Chair
CDSR'21

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ABOUT CDSR'21

The 8th International Conference on Control, Dynamic Systems, and Robotics (CDSR'21) aims to become the leading annual conference in fields related to traditional and modern control and dynamic systems.

The goal of CDSR'21 is to gather scholars from all over the world to present advances in the fields of control and dynamic systems and to foster an environment conducive to exchanging ideas and information. This conference will also provide an ideal environment to develop new collaborations and meet experts on the fundamentals, applications, and products of the mentioned fields.

CDSR'21 is a series of international conferences which are held yearly. These conferences focus on all aspects of traditional and modern control and dynamic systems. Due to COVID-19, we have made the decision to hold the 8th International Conference of Control, Dynamic Systems, and Robotics (CDSR'21). virtually this year.

CDSR is an acronym for **C**ontrol, **D**ynamic, **S**ystems, and **R**obotics.

- The proceedings is published in Ottawa, Canada.
- All papers were peer-reviewed
- The congress proceedings is published under an ISSN and ISBN number
- Each paper is assigned a unique DOI number by Crossref
- The conference proceedings is indexed by Scopus and Google Scholar
- The proceedings is permanently archived in Portico (one of the largest community-supported digital archives in the world)

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SCIENTIFIC COMMITTEE

We would like to thank the following for accepting to act as a member of the Scientific Committee for the CDSR'21 Conference:

Scientific Committee Chairs

Dr. Aparicio Carranza

New York City College of Technology, USA
Conference Chair

Dr. Yang Shi

University of Victoria, Canada
Conference Co-Chair

Scientific Committee Members

- **Dr. Lahouari Cheded,** King Fahd University of Petroleum & Minerals, Saudi Arabia
- **Dr. Eduardo Rodrigues,** The School of Design, Management and Production Technologies of Northern Aveiro, Portugal
- **Dr. Bin Wei,** Alogma University, Canada
- **Dr. Gary M. Bone,** McMaster University, Canada
- **Dr. W.J. (Chris) Zhang,** University of Saskatchewan, Canada
- **Dr. Ridha Ben Mrad,** University of Toronto, Canada
- **Dr. Syed R. Zaidi,** Bronx Community College, USA
- **Dr. Christos Anagnostopoulos,** University of Glasgow, UK

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KEYNOTE SPEAKERS

The keynote information for the 8th International Conference of Control, Dynamic Systems, and Robotics (CDSR'21) is as follows:

Dr. Christos Anagnostopoulos
University of Glasgow, UK

Dr. Syed R. Zaidi
Bronx Community College, USA

Dr. Ridha Ben Mrad
University of Toronto, Canada

Dr. Vincent Wong
University of British Columbia, Canada

Dr. W.J. (Chris) Zhang
University of Saskatchewan, Canada

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KEYNOTE SPEAKER

Titles: Pushing Intelligence at the Edge: Edge-centric Inferential Analytics

Dr. Christos Anagnostopoulos, University of Glasgow, UK

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Dr Christos (Chris) Anagnostopoulos is an Associate Professor in Distributed and Pervasive Computing, School of Computing Science, University of Glasgow. His expertise is in the areas of context-aware large-scale distributed data systems and in-network information processing. He has received funding for his research by the EC/H2020, UK EPSRC and the industry. He is an author of over 150 refereed scientific journals/conferences. Chris is leading the Essence: Pervasive & Distributed Computing Lab within the Knowledge and Data Engineering Systems Group (IDA Section). Before joining Glasgow, Chris was an Assistant Professor at Ionian University and University of Athens. He has held postdoctoral positions at University of Glasgow and University of Athens in the area of mobile and context-aware computing. He holds a BSc, MSc, and PhD in Computing Science, University of Athens. He has served as a Programme Committee member and Session Chair in more that 20 international conferences in Computing Science, been Editorial Board member in Applied Intelligence and Distributed Sensor Networks journals, Guest Editor in special issues (Sensors and Machine Learning & Cybernetics journals), and Senior Editor in Open Computer Science. He has been a MSCA Fellowship Supervisor in University of Glasgow, is an Associate Fellow of the HEA and member of ACM, IEEE and IEEE STC.

Titles: An Overview and Performance Evaluation of an EPON-based 5G RAN Architecture enabled by Distributed Network Control Management

Dr. Syed R. Zaidi, Bronx Community College, USA

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Syed Rashid Zaidi received the M.S., M.Phil. and Ph.D. degrees in Electrical Engineering from City University of New York, NY, USA. He is currently Assistant Professor & Program Director of Cybersecurity & Networking Technology and Electronic Engineering Technology in The Department of Engineering, Physics & Technology of the Bronx Community College of The City University of New York. His research areas are Fiber Optics Communications, LTE, WiMAX, 5G, and next generation wireless networks and cybersecurity. He has received numerous awards, a recent one is a prestigious grant award from the U.S. Department of Education to update the Cybersecurity program and build the latest industrial-standard lab.

KEYNOTE SPEAKER

Titles: High-Performance Micro Actuators with Applications

Dr. Ridha Ben Mrad, University of Toronto, Canada

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Professor and Director, Mechatronics and Microsystems Design Laboratory, University of Toronto. He also serves since 2015 as Chief Research Officer and Associate Scientific Director of Mitacs and member of the Executive Team. He is also Chair of the Mitacs Research Council. Mitacs is a national organization that funds innovation across Canada. He is also a Co-founder and currently President and CTO of Sheba Microsystems Inc. a Toronto manufacturer of microactuators for miniature cameras for the smart phone, automotive and action camera markets.

He joined the University of Toronto in 1997, having previously held positions at the National Research Council of Canada, and the Ford Research Laboratory in Dearborn, Michigan. Ridha received a PHD in Mechanical Engineering from the University of Michigan, Ann Arbor in 1994.

For more information Please visit:
https://cdsr.net/

Titles: Throughput Optimization for Grant-Free Multiple Access with Multiagent Deep Reinforcement Learning

Dr. Vincent Wong, University of British Columbia, Canada

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Vincent Wong is a Professor in the Department of Electrical and Computer Engineering at the University of British Columbia, Vancouver, Canada. His research areas include protocol design, optimization, and resource management of communication networks, with applications to the Internet, wireless networks, smart grid, fog computing, and Internet of Things. Currently, he is an executive editorial committee member of the IEEE Transactions on Wireless Communications, an Area Editor of the IEEE Transactions on Communications and IEEE Open Journal of the Communications Society, and an Associate Editor of the IEEE Transactions on Mobile Computing. Dr. Wong is a Fellow of the IEEE.

KEYNOTE SPEAKER

Titles: A Generic Model for Resilient Dynamic Systems

Dr. W.J. (Chris) Zhang, University of Saskatchewan, Canada

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Dr. Zhang is a full professor at the University of Saskatchewan (Canada). Dr. Zhang received his Ph.D. from Delft University of Technology in 1994. His main research area is on human-machine systems, system science and engineering and their applications to manufacturing and service systems. Dr. Zhang has published over 300 papers in refereed journals or magazines and over 200 papers in refereed conference proceedings with his h-index of 55 (Google Scholar) and held over 10 patents. Dr. Zhang has been very active in editorial board work for several IEEE journals, including IEEE Transaction on Mechatronics (Senior Editor from 2019 to present), IEEE system journal, and IEEE SMC – system (present). Dr. Zhang is a fellow of Canadian Academy of Engineering (CAE), a fellow of ASME. Dr. Zhang was one of the most highly cited researchers in IEEE by Elsevier (China) in 2015 to 2018, respectively. Dr. Zhang developed the general knowledge model for systems called FCBPSS (F: function, C: context, B: behavior, P: principle, SS: state-structure). Dr. Zhang is one of the pioneer researchers in engineering resilience, particularly in manufacturing systems and robots.

LIST OF PAPERS

The following papers were presented at the 8th International Conference on Control, Dynamic Systems, and Robotics (CDSR'21).

Motion Control

Titles: Consistent Control Framework for Ambidextrous Robot Arm Using MANFIS Controller
Authors: Mashood Mukhtar, Dhayaa Khudher, Tatiana Kalganova

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Titles: Physics-driven Locomotion Planning Method for Multilegged Robots
Authors: Fei Zhang, Yang Yu

View Paper

Titles: Attitude Task Allocation and Control in a Swarm of Magnetically Controlled CubeSats
Authors: Ahmed Mahfouz, Nourhan Abdelrahman, Salman Ali Thepdawala, Dmitry Pritykin

View Paper

Titles: Preliminary Trajectory Design for Cis-Lunar Libration Point Mission
Authors: Salman Ali Thepdawala

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Robotics I

Titles: Deep Learning-based Robot Control using Recurrent Neural Networks and Adaptive Sliding Mode Control
Authors: Raj Sureshbhai Patel
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Titles: Integration and Control of a MEMS Optical Phased Array Scanner
Authors: Tarek Mohammad, Siyuan He, Ridha Ben Mrad
View Paper

Titles: Kalman-filter-based Accurate Trajectory Tracking and Fault-Tolerant Control of Quadrotor
Authors: Rajamani Doraiswami, Lahouari Cheded, Marius Brinkmann
View Paper

Titles: Accurate Target Tracking: A New Kalman Filter Residue-Based Approach Applied To a Nonlinear Multivariable Control
Authors: Rajamani Doraiswami, Lahouari Cheded, and Sreeraman Rajan
View Paper

Titles: Plane Detection Based Object Recognition for Augmented Reality
Authors: Aparicio Carranza, Juan Estrella, Syed R. Zaidi, Harrison Carranza
View Paper

Titles: New Kalman Filter Residue-Based Identification and Soft Sensor Design for Accurate Trajectory Tracking with a Fault-tolerant Robot
Authors: Rajamani Doraiswami, Lahouari Cheded, Eduardo Jair Tito Mamani, Pamela Giselle Villarroel, Paul Gerardo Cori Mamani, Paulo Roberto Loma Marconi, Claudio Cesar Carlos Olivares, Justo Franz Choque Choque, Layde Aydee Cruz Torrico, Layde Aydee Cruz Torrico
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Linear and Nonlinear Control

Titles: Passive Control Strategy for Multi-Tethered Tetrahedral Formation for Multipoint Scientific Measurements in LEO
Authors: Basel Omran, Dmitry Pritykin
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Titles: A New Strategy for Obtaining the Pointing Stability of Stabilized Platforms
Authors: Mohammad Sadegh Mirzajani Darestani , Parviz Amiri
View Paper

Titles: A Laboratory Method for Obtaining two Degrees of Freedom
Authors: Mohammad Sadegh Mirzajani Darestani, Seyed Zeynolabedin Moussavi, Parviz Amiri
View Paper

Titles: Optimal Load-Aware Task Offloading in Mobile Edge Computing
Authors: Odysseas Polycarpou, Christos Anagnostopoulos, Kostas Kolomvatsos
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SPONSORS

International ASET Inc. would like to thank the following sponsors for their support of CDSR'21:

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JOURNAL PUBLICATION

Selected articles from the coference will be published in one of the following journals after a secondary review process:

JMIDS - Journal of Machine Intelligence and Data Science
JBEB - Journal of Biomedical Engineering and Biosciences

The publication fee will be waived for papers that win the best paper award. Other attendees will receive a 25% discount towards the publication fee of the journal.

These journals have adopted to the open-access model, meaning all free access to the journal's articles and content with no need for subscription. This ensures larger audience and therefore higher citations.

Users are allowed to read, download, copy, distribute, print, search, or link to the full texts of the articles in this journal without asking prior permission from the publisher or the author. This is in accordance with the BOAI defi nition of open access.

All published papers of JMIDS and JBEB will be submitted to Google Scholar, Microsoft Academic Search, Open J-Gate, Mendeley, Index Copernicus International, Academic Index, Mendeley, Primo Central, and Genomics JournalSeek for possible indexing. Additionally, they will be permanently archived in Portico (one of the largest community-supported digital archives in the world) and will be assigned unique DOIs.

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CDSR’22

The 9th International Conference of Control, Dynamic Systems, and Robotics (CDSR'22) will be held on June 02 - June 04, 2022 in Niagara Falls, Canada.

For inquiries and to obtain further information on the congress, please visit the website

You can also email info@cdsr.net or call us

at: +1-613-834-9999

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ETHICS & MALPRACTICE

Publication Ethics and Publication Malpractice Statement

The following statement is mainly based on the Code of Conduct and Best-Practice Guidelines for Journal Editors (Committee on Publication Ethics, 2011).

Scientific Committee

Scientific Committee
Scientific committees consisting of experts in the fields are established. The committees oversee the peer-review and publication process. To see the scientific committee members, please follow the link below.
Scientific Committee

Equality and Decisions
One or more reviewer, scientific committee member, or chair, (internal or external), are responsible for evaluating the relevance of the submitted manuscripts to the proceedings, technical and scientific merit, originally, and impact. These evaluations are to be carried out regardless of ethnicity, religion, gender, sexual orientation, political beliefs, and institutions. Successive to peer-review, the Chair has full authority and is solely responsible for the published content and the process thereof.

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Conflicts of Interest
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ETHICS & MALPRACTICE

Reviewers

Contribution to Decisions

In order for final decisions to be made regarding acceptance or rejection of papers, we rely on peer-review. Peer-review is the process of experts in the field reading, understanding, and objectively commenting on submitted papers. Through peer-review, scholars give back to the academic and scientific community by helping the chair(s) make decisions regarding manuscripts.

Promptness

Reviewers should promptly notify the chair(s) if they are unable or unqualified to carry out their reviewing duties. Reviewers should do their best to provide the reviews to the chair(s) as promptly as possible, and within the designated time-frame.

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Reviewers should thoroughly read, understand, and provide constructive feedback with the aim of improving the manuscript. Reviewers should aim to identify and report technical issues, irregularities, mistakes, missing citations, and similarity to other published work.

Conflicts of Interest

Invited reviewers should immediately inform the chair(s) in case of a conflict of interest based on competitive, collaborative, personal, family, and other relationships with the authors or people involved in the work.

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Authors

Authorship

Only persons who have significantly contributed to the work and the manuscript can be named authors on a paper. These contributions include the idea/concept, design, experiments, evaluation, analysis, drafting or revision of the manuscript, and others. Authors must all have agreed to be named as such and for the manuscript to be submitted. Anyone who has contributed based on the above, but the level of contribution is not significant, may appear in the acknowledgement section of the manuscript.

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Dual Submissions

Submitting a manuscript to more than one venue (conference, journal, etc) simultaneously is not allowed. Presenting previously published work to be considered as a new submission, without a significant new interpretation or analysis, is prohibited.

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Unethical/plagiarism issues mostly result in a retraction, while unintended mistakes will mostly result in the publication of an erratum.

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ETHICS & MALPRACTICE

Publisher

Errata and Retractions

The publisher takes the necessary steps to prevent mistakes, academic and scientific misconduct, and unethical behavior, both intended and unintended. When mistakes are reported, the publisher works with chair(s) and authors to publish an erratum clarifying the issue. In cases where the mistakes are severe and significant, the paper might be retracted. If unethical behavior, plagiarism, academic and scientific misconduct, or other such activities are proven to have taken place by an author or authors, the publisher will retract the paper.

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Schedule

This conference proceeding accompanies the conference, meaning a new proceedings will be published every year for the corresponding annual conference of this series.

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