1-6MA2 PATH PLANNING AND MOTION CONTROL
Lower Level 3, Kennesaw  10:00am - 12:00pm

Session Chair: Yue Wang, Clemson University, Clemson, SC, United States
Session Co-Chair: Ardalan Vahidi, Clemson University, Clemson, SC, United States
Session Organizer: Zheng Chen, Zhejiang University, Hangzhou, China

Geometric Motion Planning for Systems with Toroidal and Cylindrical Shape Spaces
Technical Paper Publication. DSCC2018-9144
Chaohui Gong, Bito Robotics, Pittsburgh, PA, United States, Julian Whitman, Jaskaran Singh Grover, Carnegie Mellon University, Pittsburgh, PA, United States, Zhongqiang Ren, Bito Robotics, Pittsburgh, PA, United States, Baxi Chong, Howie Choset, Carnegie Mellon University, Pittsburgh, PA, United States

Trust-Based Run-time Verification for Multi-Quadrotor Motion Planning with A Human-in-the-Loop
Technical Paper Publication. DSCC2018-9174
Maziar Fooladi Mahani, Yue Wang, Clemson University, Clemson, SC, United States

Image Quality-Driven Octocopter Flight Control via Reinforcement Learning
Technical Paper Publication. DSCC2018-9039
Qiang Li, University of Central Florida, Orlando, FL, United States, Yunjun Xu, UCF, Orlando, FL, United States

Using Compressive Sensing with In-Air Ultrasonic Measurements for Robotic Mapping
Technical Paper Publication. DSCC2018-9140
Sean Sanchez, Boston University, Boston, MA, United States, Sean Andersson, Boston Univ, Boston, MA, United States

Trajectory Tracking and Control for Nonholonomic Ground Vehicle: Preliminary and Experimental Test
Technical Paper Publication. DSCC2018-9148
Yuanyan Chen, Ohio University, Logan, OH, United States, J. Jim Zhu, Ohio University, Athens, OH, United States

Negative Obstacle Detection Using LiDAR Sensors For A Robotic Wheelchair
Technical Paper Publication. DSCC2018-9231
Taylor Baum, Kelilah Wolkowicz, Penn State University, University Park, PA, United States, Joseph Chobot, Penn State University, State College, PA, United States, Sean Brennan, Penn State University, University Park, PA, United States

Particle Swarm Optimization Of Fault Tolerant Sliding Mode Control For Quadcopter
Technical Paper Publication. DSCC2018-9078
Sital Khatiwada, University of New Hampshire, Dover, NH, United States, John McCormack, University of New Hampshire, Malvern, PA, United States, May-Win Thein, University of New Hampshire, Lee, NH, United States

Proportional Navigation and Model Predictive control of an Unmanned Autonomous Vehicle for Obstacle Avoidance
Technical Paper Publication. DSCC2018-9080
Ryan Shaw, David Bevly, Auburn University, Auburn, AL, United States

1-26MA3 UNMANNED GROUND AND AERIAL VEHICLES
Lower Level 3, Piedmont  10:00am - 12:00pm

Session Chair: Yunjun Xu, UCF, Orlando, FL, United States
Session Co-Chair: Sean Brennan, PSU, xx, PA, United States
Session Organizer: Stephanie Stockar, Penn State University, University Park, PA, United States

Image Quality-Driven Octocopter Flight Control via Reinforcement Learning
Technical Paper Publication. DSCC2018-9039
Qiang Li, University of Central Florida, Orlando, FL, United States, Yunjun Xu, UCF, Orlando, FL, United States

Using Compressive Sensing with In-Air Ultrasonic Measurements for Robotic Mapping
Technical Paper Publication. DSCC2018-9140
Sean Sanchez, Boston University, Boston, MA, United States, Sean Andersson, Boston Univ, Boston, MA, United States

Trajectory Tracking and Control for Nonholonomic Ground Vehicle: Preliminary and Experimental Test
Technical Paper Publication. DSCC2018-9148
Yuanyan Chen, Ohio University, Logan, OH, United States, J. Jim Zhu, Ohio University, Athens, OH, United States

Negative Obstacle Detection Using LiDAR Sensors For A Robotic Wheelchair
Technical Paper Publication. DSCC2018-9231
Taylor Baum, Kelilah Wolkowicz, Penn State University, University Park, PA, United States, Joseph Chobot, Penn State University, State College, PA, United States, Sean Brennan, Penn State University, University Park, PA, United States

Particle Swarm Optimization Of Fault Tolerant Sliding Mode Control For Quadcopter
Technical Paper Publication. DSCC2018-9078
Sital Khatiwada, University of New Hampshire, Dover, NH, United States, John McCormack, University of New Hampshire, Malvern, PA, United States, May-Win Thein, University of New Hampshire, Lee, NH, United States

Proportional Navigation and Model Predictive control of an Unmanned Autonomous Vehicle for Obstacle Avoidance
Technical Paper Publication. DSCC2018-9080
Ryan Shaw, David Bevly, Auburn University, Auburn, AL, United States

Path Planning for Autonomous Car Parking
Technical Paper Publication. DSCC2018-9195
Letian Lin, Ohio University, Athens, OH, United States, J.Jim Zhu, Ohio University, Athens, OH, United States

Towards Integrated Path Planning and Control of Autonomous Vehicles Using Nested MPCs
Technical Paper Publication. DSCC2018-9224
Anson Maitland, University of Waterloo, Waterloo, ON, Canada, John McPhee, Univ Of Waterloo, Waterloo, ON, Canada

Draft Program
1-3MA4 ADVANCES IN CONTROL DESIGN METHODS

Lower Level 3, Lenox 10:00am - 12:00pm

Session Chair: Xu Chen, University of Connecticut, Storrs, CT, United States
Session Co-Chair: Jing Cheng, Tsinghua University, Beijing, China
Session Organizer: Xiaojun Ban, Harbin Institute of Technology, Harbin, Heilongjiang, China

Stochastic Policies for Online Computation Triggering in Powertrain Control

Technical Paper Publication. DSCC2018-9045
Kuan Liu, Publication of Michigan — Ann Arbor, Ann Arbor, MI, United States, Yue Yun Wang, Ibrahim Haskara, General Motors R&D Ctr, Pontiac, MI, United States, Chenfang Chang, General Motors R&D Ctr, Warren, MI, United States, Anouck Girard, University of Michigan, Ann Arbor, MI, United States, Ilya Kolmanovsky, The University of Michigan, Ann Arbor, Ann Arbor, MI, United States

A Plant-Inversion Based Switched Iterative Learning Control Scheme for A Special Class of Multivariable Systems

Technical Paper Publication. DSCC2018-9069
He Li, Douglas A. Bristow, Robert G. Landers, Missouri University of Science and Technology, Rolla, MO, United States

Model-Based Sparse Information Recovery by Collaborative Sensor Management

Technical Paper Publication. DSCC2018-9088
Hui Xiao, Yaakov Bar-Shalom, Xu Chen, University of Connecticut, Storrs, CT, United States

Individualized Inter-stimulus Intervals Estimation for Neural Facilitation in Human Motor System: A Particle Filtering Approach

Technical Paper Publication. DSCC2018-9155
Kentaro Takemura, Tokai University, Hiratsuka, Kanagawa, Japan, Euisun Kim, Jun Ueda, Georgia Institute of Technology, Atlanta, GA, United States

Partitioned adaptive control based on Neural Network of a flexible space robot after capture operation

Technical Paper Publication. DSCC2018-9167
Jing Cheng, Tsinghua University, Beijing, China, Li Chen, Fuzhou University, Fuzhou, China, Jianxun Liang, Tsinghua University, Beijing, Select State/Province, China, Wei Ma, Beijing Key Laboratory of Intelligent Space Robotic Systems and Applications, Beijing, Select State/Province, China

Controller Design for Two-Input Single-Output Systems Exploiting Plant/Controller Alignment

Technical Paper Publication. DSCC2018-9182
Nathan Weir, University of Illinois, Urbana, IL, United States, Andrew G. Alleyne, Univ Of Illinois, Urbana, IL, United States

1-10MA5 MULTI-AGENT AND NETWORKED SYSTEMS

Lower Level 3, Techwood 10:00am - 12:00pm

Session Chair: Nicole Abaid, Virginia Tech, Blacksburg, VA, United States
Session Co-Chair: Santosh Devasia, Univ Of Washington, Seattle, WA, United States
Session Organizer: Wenlong Zhang, Arizona State University, Mesa, AZ, United States

Rapid Information Transfer in Swarms under Update-Rate Bounds using Delayed Self Reinforcement

Technical Paper Publication. DSCC2018-9001
Santosh Devasia, Univ Of Washington, Seattle, WA, United States

Cooperative Deterministic Learning-based Trajectory Tracking for a Group of Unicycle-type Vehicles

Technical Paper Publication. DSCC2018-9139
Xiaonan Dong, Chengzhi Yuan, University of Rhode Island, Kingston, RI, United States, Fen Wu, North Carolina State Univ, Raleigh, NC, United States

Discovery of Dynamical Kinds

Technical Paper Publication. DSCC2018-9146
Amanda Hashimoto, Subhradeep Roy, Colin Shea-Blymyer, Benjamin Jantzen, Nicole Abaid, Virginia Tech, Blacksburg, VA, United States

Design of a Periodic Event Based Repetitive Controller with Dynamic Output Feedback for Linear Systems

Technical Paper Publication. DSCC2018-9174
Gradui Min, Principal R. L. Algha, Texas A&M University, College Station, TX, United States

Human-Robot Trust Integrated Task Allocation and Symbolic Motion Planning for Heterogeneous Multi-robot Systems

Technical Paper Publication. DSCC2018-9161
Huanfei Zheng, Zhanrui Liao, Yue Wang, Clemson University, Clemson, SC, United States

Exploring the Optimality of a Limited View Angle in the Two-Dimensional Vicsek Model

Technical Paper Publication. DSCC2018-9232
Masoud Jahromi Shirazi, Nicole Abaid, Virginia Tech, Blacksburg, VA, United States

1-7MA6 BIO ENGINEERING APPLICATIONS

Lower Level 3, Spring 10:00am - 12:00pm

Session Chair: Qingze Zou, Rutgers University, Piscataway, NJ, United States
Session Co-Chair: Juan Ren, Iowa State University, Ames, IA, United States
Session Organizer: Chang Duan, Prairie ViewA&M, Prairie View, TX, United States

Computational Modeling Of Spontaneous Otoacoustic emissions By The Mammalian Cochlea

Technical Paper Publication. DSCC2018-9044
Julien Meaud, Georgia Institute of Technology, ATLANTA, GA, United States, Thomas Bowling, Georgia Tech, Atlanta, GA, United States, Charlsie Lemons, Georgia Institute of Technology, Atlanta, GA, United States
HUMAN-INSPIRED ALGEBRAIC CURVES FOR WEARABLE ROBOT CONTROL
Technical Paper Publication. DSCC2018-9061
Alireza Mohammadi, University of Texas at Dallas, Dallas, TX, United States, Robert D. Gregg, University of Texas At Dallas, Richardson, TX, United States

Rotary versus Flapping Flight: An Application Study for Optimal Periodic Control Theory
Technical Paper Publication. DSCC2018-9118
Mohammad Ghanaatpishe, Pennsylvania State University, University Park, PA, United States, Yagiz E. Bayiz, The Pennsylvania State University, University Park, PA, United States, Bo Cheng, Pennsylvania State University, University Park, PA, United States, Hosam K. Fathy, The Pennsylvania State University, University Park, PA, United States

Rapid Probe Engagement and Withdrawal with Online Minimized Probe-Sample Interaction Force in Atomic Force Microscopy
Technical Paper Publication. DSCC2018-9156
Jingren Wang, Qingze Zou, Rutgers University, Piscataway, NJ, United States

New algorithm to design real time optimal and robust ultrafiltration rates in chronic kidney disease to prevent cardiovascular morbidity and mortality
Technical Paper Publication. DSCC2018-9172
Ramnath Abohtyra, University of Massachusetts, Amherst, MA, United States, Yossi Chait, University of Massachusetts, Amherst, MA, United States

MODELING AND CONTROL OF DYNAMIC CELLULAR MECHANOTRANSDUCTION (I): ACTIN CYTOSKELETON QUANTIFICATION
Technical Paper Publication. DSCC2018-9180
Yi Liu, Juan Ren, Iowa State University, Ames, IA, United States

OPTIMAL ENERGY MANAGEMENT IN A RANGE EXTENDER PHEV USING A CASCADED DYNAMIC PROGRAMMING APPROACH
Technical Paper Publication. DSCC2018-9043
Pradeep Sharma Oruganti, The Ohio State University, Columbus, OH, United States, Daniel Jung, Mukilan Arasu, The Ohio State University, Columbus, OH, United States, Qadeer Ahmed, Center For Automotive Research, Columbus, OH, United States, Giorgio Rizzoni, Ohio State University, Columbus, OH, United States

REALIZING TRAJECTORY-BASED COMBUSTION CONTROL IN A HYDRAULIC FREE PISTON ENGINE VIA A FAST-RESPONSE DIGITAL VALVE
Technical Paper Publication. DSCC2018-9057
Chen Zhang, University of Minnesota, Twin city, MN, United States, Zongxuan Sun, University Of Minnesota, Minneapolis, MN, United States

Optimization of Mode Switching Timing Control for a Lean-burn Gasoline Engine with a Prototype Passive SCR System
Technical Paper Publication. DSCC2018-9062
Dakota Strange, Pingen Chen, Tennessee Technological University, Cookeville, TN, United States, Vitaly Y., Prikhodko, Oak Ridge National Laboratory, Knoxville, TN, United States, James Parks, Oak Ridge Natl Lab, Knoxville, TN, United States

ENERGY AVAILABILITY STUDY FOR A REGENERATIVE HYDRAULICALLY ASSISTED TURBOCHARGER
Technical Paper Publication. DSCC2018-9134
Tao Zeng, DENS0 International America, Bloomfield Hills, MI, United States, Yifan Mon, Michigan State University, East Lansing, MI, United States, Devesh Upadhyay, Ford Motor Company, Dearborn, MI, United States, Shreedhar Nair, Oak Ridge National Laboratory, Knoxville, TN, United States, Guoming Zhu, Michigan State University, East Lansing, MI, United States

MODELING AND CONTROL OF DYNAMIC CELLULAR MECHANOTRANSDUCTION (II): ACTIN CYTOSKELETON QUANTIFICATION
Technical Paper Publication. DSCC2018-9180
Yi Liu, Juan Ren, Iowa State University, Ames, IA, United States

TRACK 2 Contributed Papers

2-1MA1 MODELING AND CONTROL OF IC ENGINES AND POWERTRAIN SYSTEMS
Lower Level 3, Inman 10:00am - 12:00pm

Session Chair: Zongxuan Sun, University Of Minnesota, Minneapolis, MN, United States
Session Co-Chair: Pingen Chen, Tennessee Technological University, Cookeville, TN, United States
Session Organizer: Carrie M. Hall, Illinois Institute of Technology, Chicago, IL, United States
Model Predictive Control Based Energy Management of Power-Split Hybrid Electric Vehicles in Presence of Uncertainty
Technical Paper Publication. DSCC2018-8961
Baisravan Homchaudhuri, Carrie M. Hall, Illinois Institute of Technology, Chicago, IL, United States

A CONTROL-ORIENTED REACTION-BASED SI ENGINE COMBUSTION MODEL
Technical Paper Publication. DSCC2018-8988
RuiXue Christine Li, Guoming Zhu, Michigan State University, East Lansing, MI, United States

TRACK 1 Contributed Papers

1-34MM2 PATH PLANNING AND MOTION CONTROL II
Lower Level 3, Kennesaw 1:30pm - 3:30pm

Session Chair: Phanindra Tallapragada, Clemson University, Clemson, SC, United States
Session Co-Chair: Zhaojian Li, Michigan State University, East Lansing, MI, United States
Session Organizer: Shreekant Gayaka, Applied Materials Company, San Francisco, CA, United States
Pursuit Strategies for a Target Tracking Game Around a Circular Obstacle
Technical Paper Publication. DSCC2018-9127
Rui Zou, Tianhuang Gao, Sourabh Bhattacharya, Iowa State University, Ames, IA, United States

CONTROLLABILITY OF A PAIR OF SWIMMING MICRORODORS IN A BOUNDED DOMAIN at LOW REYNOLDS NUMBER
Technical Paper Publication. DSCC2018-9013
Jake Buzhardt, Clemson University, Clemson, SC, United States, Vitaliy Fedonyuk, Clemson University, Rock Hill, SC, United States, Senbagaraman Sudarsanam, Phanindra Tallapragada, Clemson University, Clemson, SC, United States
Navigation Strategies for a Multi-Robot Ground-Based Row Crop Phenotyping Platform
Technical Paper Publication. DSCC2018-9096
Tianshuang Gao, Hamid Emadi, Homagni Saha, Jiaoping Zhang, Alec Loqufist, Arti Singh, Basak Ganapathysubramanian, Soumik Sarkar, Asheesh Singh, Sourabh Bhattacharya, Iowa State University, Ames, IA, United States

Integration of Multibody System Dynamics with Sliding Mode Control Using FPGA Technique for Trajectory Tracking Problems
Technical Paper Publication. DSCC2018-9108
Ayman A. Nada, Abdullateef Bashiri, Jazan University, Jazan, OO, Saudi Arabia

Comparison Between Position and Rate Control Using a Foot Interface
Technical Paper Publication. DSCC2018-9115
Zachary Dougherty, Ryder Winck, Rose-Hulman Institute of Technology, Terre Haute, IN, United States

Virtual Motion Camouflage Based Visual Servo Control of a Leaf Picking Mechanism
Technical Paper Publication. DSCC2018-9042
Sinem Defterli, University of Central Florida, Orlando, FL, United States, Yunjun Xu, UCF, Orlando, FL, United States

1-32MM3 UNMANNED GROUND AND AERIAL VEHICLES II
Lower Level 3, Piedmont  1:30pm - 3:30pm
Session Chair: Garrett Clayton, Villanova University, Villanova, PA, United States
Session Co-Chair: Rumit Kumar, University of Cincinnati, Cincinnati, OH, United States
Session Organizer: Junfeng Zhao, General Motors, Pontiac, MI, United States
PREDICTION OF WHEEL SLIPPING LIMITS FOR MOBILE ROBOTS
Technical Paper Publication. DSCC2018-9053
Alan Whitman, Garrett Clayton, Hashem Ashrafioon, Villanova University, Villanova, PA, United States

Discriminating Spatial Intent from Noisy Joystick Signals for Wheelchair Path Planning and Guidance
Technical Paper Publication. DSCC2018-9228
Kelilah Wolkowicz, Penn State University, University Park, PA, United States, Robert Leary, The Pennsylvania State University, State College, PA, United States, Jason Moore, The Pennsylvania State University, University Park, PA, United States, Sean Brennan, Pennsylvania State Unv, University Park, PA, United States

Fault Tolerance of a Reconfigurable Tilt-Rotor Quadcopter using Sliding Mode Control
Technical Paper Publication. DSCC2018-9199
Siddharth Sridhar, Rumit Kumar, Kelly Cohen, University of Cincinnati, Cincinnati, OH, United States, Manish Kumar, University of Cincinnati, Wyoming, OH, United States

Reconfigurable Fault-Tolerant Tilt-Rotor Quadcopter System
Technical Paper Publication. DSCC2018-9197
Rumit Kumar, Siddharth Sridhar, University of Cincinnati, Cincinnati, OH, United States, Franck Cazaurang, University of Bordeaux, Talence, Select State/Province, France, Kelly Cohen, University of Cincinnati, Cincinnati, OH, United States, Manish Kumar, University of Cincinnati, Wyoming, OH, United States

Road Condition Based Adaptive Model Predictive Control for Autonomous Vehicles
Technical Paper Publication. DSCC2018-9095
Xin Wang, Chang’an University, Xi??an, Shaanxi, China, Longxiang Guo, Yunyi Jia, Clemson University, Greenville, SC, United States

A Fast Integrated Planning and Control Framework for Autonomous Driving via Imitation Learning
Technical Paper Publication. DSCC2018-9249
Liting Sun, Cheng Peng, Wei Zhan, Masayoshi Tomizuka, University of California, Berkeley, Berkeley, CA, United States

1-32MM4 ADVANCES IN CONTROL DESIGN METHODS II
Lower Level 3, Lenox  1:30pm - 3:30pm
Session Chair: Shahin Nudehi, Valparaiso University, Valparaisio, IN, United States
Session Co-Chair: Yousef Sardahi, Marshall University, Huntington, WV, United States
Session Organizer: Minghui Zheng, UC Berkeley, Berkeley, CA, United States
Optimal Switching of Voltage Source Inverters Using Approximate Dynamic Programming
Technical Paper Publication. DSCC2018-8998
Ataollah Gogani Khiabani, Ali Heydari, Southern Methodist University, Dallas, TX, United States

SETPOINT TRACKING CONTROL WITH DISCRETE ACTUATORS USING CONTROLLER SWITCHING
Technical Paper Publication. DSCC2018-8956
Yuichi Chida, Ryotaro Hara, Shinshu University, Nagano, Japan

Speed Control of Shunt-Wound DC Motors using Switching Technique
Technical Paper Publication. DSCC2018-8953
Shahin Nudehi, Valparaiso University, Valparaiso, IN, United States, Ryan Newendyke, Dylan Antonides, Timothy Zange, Valparaiso University, Valparaiso, IN, United States

MULTI-OBJECTIVE OPTIMAL DESIGN OF FOUR-PARAMETER PID CONTROLS
Technical Paper Publication. DSCC2018-8935
Yousef Sardahi, Almuatazbellah Boker, Marshall University, Huntington, WV, United States

Experimental Study of NMP Sample and Hold Input using an Inverted Pendulum
Technical Paper Publication. DSCC2018-8994
Yingxu Wang, Guoming Zhu, Ranjan Mukherjee, Michigan State University, East Lansing, MI, United States
Stability Analysis and Controller Design for Fuzzy Parameter Varying Systems Based on Fuzzy Lyapunov Function

Technical Paper Publication. DSCC2018-8996

Xiaojun Ban, Hongyang Zhang, Harbin Institute of Technology, Harbin, Heilongjiang, China, Fen Wu, North Carolina State Univ, Raleigh, NC, United States

1-20MM5 ADVANCES IN ROBOTICS

Lower Level 3, Techwood 1:30pm - 3:30pm

Session Chair: Hanz Richter, Cleveland State Univ, Cleveland, OH, United States
Session Co-Chair: Alicia Keow, University of Houston, Houston, TX, United States
Session Organizer: Guodong Yin, Southeast University, Nanjing, Jiangsu, China

Contact and Tracking Hybrid Control With Impulse-Momentum Sliding Surface And Terminal Sliding Mode

Technical Paper Publication. DSCC2018-8945

Hanz Richter, Cleveland State Univ, Cleveland, OH, United States, Saleh Mobayan, Zanjan University, Zanjan, Iran, Daniel Simon, Cleveland State University, Cleveland, OH, United States

Apex Height Control of a Two-Mass Robot Hopping on a Viscoelastic Foundation with Inertia

Technical Paper Publication. DSCC2018-8975

Amer Allafi, Michigan State University, East Lansing, MI, United States, Frank Mathis, GeoControl system, Houston, TX, United States, Ranjan Mukherjee, Michigan State University, East Lansing, MI, United States

Limit Cycle Behavior and Model Reduction of an Oscillating Fish-Like Robot

Technical Paper Publication. DSCC2018-9036

Beau Pollard, Clemson University, Central, SC, United States, Vitaliy Fedonyuk, Clemson University, Rock Hill, SC, United States, Phanindra Tallapragada, Clemson University, Clemson, SC, United States

STRAWBERRY PLANT LOCALIZATION VIA RELATIVE PIXELS IN SEQUENTIAL IMAGES

Technical Paper Publication. DSCC2018-9034

Xiangling Kong, University of Central Florida, Orlando, FL, United States, Yunjun Xu, UCF, Orlando, FL, United States

A Traveling Wave Model Guided Robotic Fish Design Using Double Slot-Crank Mechanism

Technical Paper Publication. DSCC2018-9064

Wenyu Zuo, Zheng Chen, University of Houston, Houston, TX, United States

Modeling and Control of Artificial Swimming Bladder Enabled by IPMC Water Electrolysis

Technical Paper Publication. DSCC2018-9076

Alicia Keow, Zheng Chen, University of Houston, Houston, TX, United States

1-25MM6 BIOMEDICAL AND NEURAL SYSTEMS

Lower Level 3, Spring 1:30pm - 3:30pm

Session Chair: Biswanath Samanta, Georgia Southern University, Statesboro, GA, United States
Session Co-Chair: Manan Gandhi, Georgia Institute of Technology, Lawrenceville, GA, United States
Session Organizer: Jim Dabney, University of Houston-Clear Lake, Houston, TX, United States

Learning to Predict Coronary Perfusion Pressure

Technical Paper Publication. DSCC2018-8968

Manan Gandhi, Georgia Institute of Technology, Lawrenceville, GA, United States, Pierre Sebastian, University of Minnesota, Minneapolis, MN, United States, Yunpeng Pan, JD.COM, Santa Clara, CA, United States, Matt Olson, Demetri Yannopoulos, University of Minnesota, Minneapolis, MN, United States, Evangelos Theodorou, Georgia Institute of Technology, Atlanta, GA, United States

Sliding Mode Impedance Control of a Hydraulic Artificial Muscle

Technical Paper Publication. DSCC2018-9186

Jonathon Slightam, Mark Nagurka, Marquette University, Milwaukee, WI, United States, Eric Barth, Vanderbilt Univ, Nashville, TN, United States

Characterizing Combustion Instability Using Deep Convolutional Neural Network

Technical Paper Publication. DSCC2018-9208

Tryambak Gangopadhyay, Iowa State University, Ames, IA, United States, Anthony Locurto, Iowa State University, Mount Pleasant, WI, United States, Paige Boor, James B. Michael, Scenmik Parker, Iowa State University, Ames, IA, United States

DESIGN AND EVALUATION OF A PROPORTIONAL MYOELECTRIC CONTROLLER FOR HIP EXOSKELETON DURING NORMAL WALKING

Technical Paper Publication. DSCC2018-9226

Hsiang Hsu, Inseung Kang, Aaron J. Young, Georgia Institute of Technology, Atlanta, GA, United States

Brain Computer Interface Using Motor Imagery And Facial Expressions To Control A Mobile Robot

Technical Paper Publication. DSCC2018-9234

James Kuffuor, Biswanath Samanta, Georgia Southern University, Statesboro, GA, United States

Modeling and Validation of Capacitive type RF MEMS for low actuation voltage and high isolation

Technical Paper Publication. DSCC2018-8939

Vishram Sawant, Shivaji University, Kolhapur, India, Suhas Mohite, Mukesh Madhewar, Government College of Engineering, Karad, India
TRACK 2 Invited Papers

2-2MM1 AUTOMOTIVE DYNAMICS AND EMERGING POWERTRAIN TECHNOLOGIES
Lower Level 3, Inman 1:30pm - 3:30pm

Session Chair: Yan Chen, Arizona State University, Mesa, AZ, United States
Session Co-Chair: Xiangrui Zeng, Ford Motor Company, Dearborn, MI, United States
Session Organizer: Hoseinali Borhan, Cummins Inc., Columbus, IN, United States

Estimating the Roll and Pitch Rate Signal Drift in a Moving Ground Vehicle
Technical Paper Publication. DSCC2018-8974
Xiangrui Zeng, Amit Mohanty, Ford Motor Company, Dearborn, MI, United States

A FAULT TOLERANT VEHICLE STABILITY CONTROL USING ADAPTIVE CONTROL ALLOCATION
Technical Paper Publication. DSCC2018-8976
Ozan Temiz, Melih Cakmakci, Yildiray Yildiz, Bilkent University, Ankara, Bilkent, Turkey

AN OPTIMIZATION-ORIENTED SUPERVISORY CONTROLLER DESIGN FOR HYBRID FUEL CELL ELECTRIFIED VEHICLES
Technical Paper Publication. DSCC2018-8995
Kai Wu, University of Michigan, Ann Arbor, MI, United States, Milos Milacic, Alhadi Albousefi, Ming Kuang, Ford Motor Company, Dearborn, MI, United States, Jing Sun, University of Michigan, Ann Arbor, MI, United States

Battery Discharge Strategies for Energy Management in Electrified Truck for Pick-Up and Delivery Application
Technical Paper Publication. DSCC2018-9116
Mukilan Arasu, The Ohio State University, Columbus, OH, United States, Qadeer Ahmed, Center For Automotive Research, Columbus, OH, United States, Giorgio Rizzoni, Ohio State University, Columbus, OH, United States

Hierarchical Input-Output Decoupling Control for Vehicle rollover Mitigation
Technical Paper Publication. DSCC2018-9166
Fengchen Wang, Yan Chen, Arizona State University, Mesa, AZ, United States

Predictively Coordinated Vehicle Acceleration and Lane Selection Using Mixed Integer Programming
Technical Paper Publication. DSCC2018-9177
Robert Dollar, Ardalan Vahidi, Clemson University, Clemson, SC, United States

Draft Program
1-22ME4 VIBRATIONS AND CONTROL OF SYSTEMS
Lower Level 3, Lenox 4:00pm - 6:00pm

Session Chair: Aldo Ferri, Georgia Institute of Technology, Atlanta, GA, United States
Session Co-Chair: Aqeel Madhag, Michigan State University, East Lansing, MI, United States
Session Organizer: Hui Zhang, Kansas State University, Manhattan, KS, United States
A Comprehensive Fluid Coupled Lateral Drill String Vibration Model based on Classical Vibration Theories
Technical Paper Publication. DSCC2018-8902
Abhijet Chodankar, Abdennour Seibi, University of Louisiana At Lafayette, Lafayette, LA, United States

A Novel Dynamic Model Of A Reaction Wheel Assembly For High Accuracy Pointing Space Missions
Technical Paper Publication. DSCC2018-8918

Control of Slender-Beam Payloads During Lift-up Operations
Technical Paper Publication. DSCC2018-8967
Shenghai Wang, Dalian Maritime University, Dalian, Dalian, China, Aldo Ferri, Georgia Institute of Technology, Atlanta, GA, United States, William Singhose, Yujia Yang, Georgia Tech, Atlanta, GA, United States

Control Design for the System of Manipulator Handling a Flexible Payload with Input Constrain
Technical Paper Publication. DSCC2018-18893
Shuyang Liu, Changchun University of Technology, Changchun, China, Reza Langari, Texas A&M University, College Station, TX, United States, Yuanchun Li, Changchun University of Technology, Changchun, China

GUARANTEE PERFORMANCE ICC-LPV CONTROL WITH SENSING AGING
Technical Paper Publication. DSCC2018-8992
Aqeel Madhag, Guoming Zhu, Michigan State University, East Lansing, MI, United States

1-39ME5 ADVANCES IN ROBOTICS II
Lower Level 3, Techwood 4:00pm - 6:00pm

Session Chair: Pushparaj Mani Pathak, Indian Institute of Technology, Roorkee, Roorkee, India
Session Co-Chair: Roberto Belotti, Free University of Bolzano-Bozen, Bolzano, BZ, Italy
Session Organizer: Hui Zhang, Ohio State University, Columbus, OH, United States
Learning Based Speed Control Of Soft Robotic Fish
Technical Paper Publication. DSCC2018-8977
Sunil Kumar Rajendran, Feitian Zhang, George Mason University, Fairfax, VA, United States

CONTROL WITH OPTIMAL ENERGY REGENERATION IN ROBOT MANIPULATORS DRIVEN BY BRUSHLESS DC MOTORS
Technical Paper Publication. DSCC2018-8972
Amin Ghorbanpour, Cleveland State University, Cleveland, OH, United States, Hanz Richter, Cleveland State Univ, Cleveland, OH, United States

The Effect of Nonlinear Springs in Jumping Mechanism
Technical Paper Publication. DSCC2018-8969
Sahand Sadeghi, Blake D. Betsill, Phanindra Tallapragada, Suji Li, CLEMSON UNIVERSITY, CLEMSON, SC, United States

2-10ME1 CONTROL AND OPTIMIZATION OF CONNECTED AND AUTOMATED GROUND VEHICLES
Lower Level 3, Inman 4:00pm - 6:00pm

Session Chair: Junmin Wang, Ohio State University, Columbus, OH, United States
Session Co-Chair: Baisravan Homchaudhuri, Illinois Institute of Technology, Chicago, IL, United States
Session Organizer: Pingen Chen, Tennessee Technological University, Cookeville, TN, United States
LINEAR MULTI-TARGET INTEGRATED PROBABILISTIC DATA ASSOCIATION FILTER WITH AUTOMATIC TRACK MANAGEMENT FOR AUTONOMOUS VEHICLES
Technical Paper Publication. DSCC2018-8930
Andinet Hunde, Clemson University, Clemson, SC, United States, Beshah Ayalew, Clemson University, Greenville, SC, United States

Computationally-Efficient Fuel-Economic High-Level Controller Design for a Group of Connected Vehicles in Urban Roads
Technical Paper Publication. DSCC2018-9124
Alejandro Fernandez Canosa, Baisravan Homchaudhuri, Illinois Institute of Technology, Chicago, IL, United States

A Dynamic-System-Based Approach to Modeling Driver Movements Across General-Purpose/Managed Lane Interfaces
Technical Paper Publication. DSCC2018-9125
Matthew A. Wright, Roberto Horowitz, Alex A. Kurzhanskiy, University of California, Berkeley, Berkeley, CA, United States
An End-to-End Fully Automatic Bay Parking Approach for Autonomous Vehicles
Technical Paper Publication. DSCC2018-9126
Rui Li, Weitian Wang, Yi Chen, Srivatsan Srinivasan, Venkat N. Krovil, Clemson University, Greenville, SC, United States

Parameter Selection of An LTV-MPC Controller for Vehicle Path Tracking Considering CPU Computational Load
Technical Paper Publication. DSCC2018-9129
Zejiang Wang, Yunhao Bai, Junmin Wang, Xiaorui Wang, Ohio State University, Columbus, OH, United States

Optimization of Energy-Efficient Speed Profile for Electrictrified Vehicles
Technical Paper Publication. DSCC2018-9138
Hadi Abbas, Youngki Kim, University of Michigan, Dearborn, MI, United States, Jason Siegel, Univ Of Michigan, Ann Arbor, MI, United States, Denise Rizzo, U.S. Army TARDEC, Warren, MI, United States

2-11ME3 UNMANNED AERIAL VEHICLES (UAVS) AND APPLICATION
Lower Level 3, Piedmont 4:00pm - 6:00pm

Session Chair: Mark W. Mueller, UC Berkeley, Berkeley, CA, United States
Session Co-Chair: Wenlong Zhang, Arizona State University, Mesa, AZ, United States
Session Organizer: Manish Kumar, University of Cincinnati, Wyoming, OH, United States

A dynamics-agnostic state estimator for unmanned aerial vehicles using ultra-wideband radars
Technical Paper Publication DSCC2018-8950
Mark W. Mueller, UC Berkeley, Berkeley, CA, United States

Decentralized 3D PDE Based Collaborative Trajectory Planning and Target Surrounding for Swarm of UAVs in Cluttered Environment
Technical Paper Publication. DSCC2018-9137
Mohammadreza Radmanesh, University of Cincinnati, Cincinnati, OH, United States, Manish Kumar, University of Cincinnati, Wyoming, OH, United States, David Casbeer, AFRL, Dayton, OH, United States, Kelly Cohen, University of Cincinnati, Cincinnati, OH, United States

Genetic Algorithm Approach for UAV Persistent Visitation Problem
Technical Paper Publication. DSCC2018-8950
Alexander Von Moll, AFRL, WPAFB, OH, United States, Krishna Kalyanam, Infoscitex Corporation, Dayton, OH, United States, David Casbeer, AFRL, Dayton, OH, United States, Satyanarayana Gupta Manyam, Infoscitex Corporation, Dayton, OH, United States

Design and Control of a Hexacopter with Soft Grasper for Autonomous Object Detection and Grasping
Technical Paper Publication. DSCC2018-9107
Shatadal Mishra, Dangli Yang, Carly Thalman, Panagiotis Polygerinos, Wenlong Zhang, Arizona State University, Mesa, AZ, United States

Energy-Efficient Adaptive Robust Control of Vector Thrust UAVs With Unknown Inertia Parameters
Technical Paper Publication. DSCC2018-9133
Caiwu Ding, Lu Lu, Cong Wang, New Jersey Institute of Technology, Newark, NJ, United States

Robust UAVs Attitude Estimation using a Cascade of Nonlinear Observer and Linearized Kalman Filter
Technical Paper Publication. DSCC2018-9123
Haukur Kristinsson, Søren Petersen, Agus Hasan, Valthor Gudmundsson, University of Southern Denmark, Odense, Denmark

2-3ME6 BIO-MECHATRONICS AND PHYSICAL HUMAN ROBOT INTERACTION
Lower Level 3, Spring 4:00pm - 6:00pm

Session Chair: Jun Ueda, Georgia Institute of Technology, Atlanta, GA, United States
Session Co-Chair: Edmond Richer, SMU, Dallas, TX, United States
Session Organizer: Anirban Mazumdar, Georgia Institute of Technology, Atlanta, GA, United States, Wenlong Zhang, Arizona State University, Mesa, AZ, United States

Energy Implications of Torque Feedback Control and Series Elastic Actuators for Mobile Robots
Technical Paper Publication. DSCC2018-9141
Stephen Buerger, Sandia National Laboratories, Albuquerque, NM, United States, Anirban Mazumdar, Georgia Institute of Technology, Atlanta, GA, United States, Steven Spencer, Sandia National Laboratories, Albuquerque, NM, United States

Design and Evaluation of a Torque Controllable Hip Exoskeleton for Walking Assistance
Technical Paper Publication. DSCC2018-9198
Inseung Kang, Hsiang Hsu, Aaron J. Young, Georgia Institute of Technology, Atlanta, GA, United States

Capturability of inverted pendulum gait model under slip conditions
Technical Paper Publication. DSCC2018-9203
Marko Mihalec, Rutgers University, Piscataway, NJ, United States, Jingang Yi, Rutgers University, Mechanical and Aerospace Engineering Dept, Piscataway, NJ, United States

Control and Experimental Validation of a Powered Knee and Ankle Prosthetic Device
Technical Paper Publication. DSCC2018-9218
Krishan Bhakta, Georgia Institute of Technology, Atlanta, GA, United States, Jonathan Camargo, Aaron J. Young, Georgia Institute of Technology, Atlanta, GA, United States

Variability in muscle recruitment strategy between operators during assisted assembly tasks
Technical Paper Publication. DSCC2018-9222
Yingxin Qiu, G.W.W. School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, United States, Atsushi Okabe, Dept. of Mechanical Engineering and Intelligent Systems, University of Electro-Communications, Tokyo, Japan, Keerthana Murali, G.W.W. School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, GA, United States, Dalong Gao, General Motors, Detroit, MI, United States, Jun Ueda, Georgia Institute of Technology, Atlanta, GA, United States

Draft Program
MULTI-PHYSICS DESIGN AND MODELING OF 3D PRINTED HYDRAULICALLY AMPLIFIED DIELECTRIC ELASTOMER ACTUATORS WITH LARGE ACTUATION STROKES
Technical Paper Publication. DSCC2018-9227
Amir Hosein Zamanian, Daniel A. Porter, Paul S. Krueger, Southern Methodist University, Dallas, TX, United States, Edmond Richer, SMU, Dallas, TX, United States

Technical Paper Publication. DSCC2018-9243
Pingen Chen, Qinghua Lin, Tennessee Technological University, Cookeville, TN, United States

1-19TA2 MODELING AND VALIDATION
Lower Level 3, Kennesaw 10:00am - 12:00pm
Session Chair: Ayse Tekes, Kennesaw State University, Marietta, GA, United States
Session Co-Chair: Meghashyam Panyam, Clemson University Restoration Institute, North Charleston, SC, United States
Session Organizer: Meng (rachel) Wang, Eaton Corporation, Eden Prairie, MN, United States
ADJUSTABLE COMPLIANT MECHANISM LOAD DEFLECTION TEST BENCH DESIGN
Technical Paper Publication. DSCC2018-8943
Ayse Tekes, Kennesaw State University, Marietta, GA, United States, Kevin McFall, Kennesaw State University, GA, United States, Franklin Woods, Alexander Bryant, Kennesaw State University, Marietta, GA, United States

A Multibody Toolbox for Hybrid Dynamic System Modeling Based on Nonholonomic Symbolic Formalism
Technical Paper Publication. DSCC2018-9000
Usman Sharif, Virginia Tech, Blacksburg, VA, United States, Pinhas Ben-Tzvi, Virginia Tech, Blacksburg, VA, United States

SIMULTANEOUS OPTIMIZATION OF CONFIGURATION AND CONTROL FOR A PASSIVE SCR SYSTEM
Technical Paper Publication. DSCC2018-9243
Pingen Chen, Qinghua Lin, Tennessee Technological University, Cookeville, TN, United States

On the Multi-Body Modeling and Validation of a Full Scale Wind Turbine Nacelle Test Bench
Technical Paper Publication. DSCC2018-9100
Meghashyam Panyam, Amin Bibo, Clemson University Restoration Institute, North Charleston, SC, United States, Sam Roach, University of Texas, Austin, TX, United States

Stochastic Optimization of Impedance Parameters for a Powered Prosthesis Using a 3D Simulation Environment
Technical Paper Publication. DSCC2018-9206
Jonathan Camargo, Georgia Institute of Technology, Atlanta, GA, United States, Krishan Bhakta, Georgia Institute of Technology, Atlanta, GA, United States, Aaron J. Young, Georgia Institute of Technology, Atlanta, GA, United States

EXPERIMENTAL INVESTIGATION AND ANALYSIS OF AUTO-IGNITION COMBUSTION DYNAMICS
Technical Paper Publication. DSCC2018-9184
Abhinav Tripathi, University of Minnesota, Minneapolis, MN, United States, Chen Zhang, University of Minnesota, Twin city, MN, United States, Zongxuan Sun, University Of Minnesota, Minneapolis, MN, United States

Configuration and Control Design for a Passive SCR System with NOx Storage Capability
Technical Paper Publication. DSCC2018-9241
Qinghua Lin, Pingen Chen, Tennessee Technological University, Cookeville, TN, United States, Vitaly Y., Prikhodko, Oak Ridge National Laboratory, Knoxville, TN, United States, James Parks, Oak Ridge Natl Lab, Knoxville, TN, United States
1-41TA4 VIBRATIONS AND CONTROL OF SYSTEMS II
Lower Level 3, Lenox  10:00am - 12:00pm

Session Chair: Mohammad Ali Ayoubi, Santa Clara University/Dept of Mechanical Eng., Santa Clara, CA, United States
Session Co-Chair: Yousef Sardahi, Marshall University, Huntington, WV, United States
Session Organizer: Cornel Sultan, Virginia Tech, Blacksburg, VA, United States
MULTI-OBJECTIVE OPTIMAL DESIGN OF PASSIVE SUSPENSION SYSTEM WITH INERTER DAMPER
Technical Paper Publication. DSCC2018-9011
Xiaotian Xu, Yousef Sardahi, Chenyu Zheng, Marshall University, Huntington, WV, United States

Planar Motion Control, Coordination, and Dynamic Entrainment in Chaplygin Beanes
Technical Paper Publication. DSCC2018-9037
Scott D Kelly, University of North Carolina, Charlotte, Charlotte, NC, United States, Rodrigo Abraján-Guerrero, University of North Carolina At Charlotte, Charlotte, NC, United States, Jas karan Singh Grover, Matthew Travers, Howie Choset, Carnegie Mellon University, Pittsburgh, PA, United States

Control design with inverse feedback shaper for quadcopter with suspended load
Technical Paper Publication. DSCC2018-9052
Jaroslav Busek, Matej Kure, Martin Hromcik, Tomas Vyhlidal, Czech Technical University in Prague, Prague, Czech Republic

A NOVEL NON-RASTER SCAN METHOD FOR AFM IMAGING
Technical Paper Publication. DSCC2018-9049
Nastaran Nikooienejad, Mohammad Maroufi, Navid Fallahinia, University of Texas at Dallas, Richardson, TX, United States

Open-Loop Minimum-Energy Maneuver of a Solar-Sail Using Magnetic Torques and Reaction Wheels
Technical Paper Publication. DSCC2018-9093
Mohammad Ali Ayoubi, Santa Clara University/Dept of Mechanical Eng., Santa Clara, CA, United States, Peiman Naserradinmousavi, San Diego State University, San Diego, CA, United States

1-40TA5 ADVANCES IN ROBOTICS III
Lower Level 3, Techwood  10:00am - 12:00pm

Session Chair: Stephen Mascaro, Univ Of Utah, Salt Lake City, UT, United States
Session Co-Chair: Feitian Zhang, George Mason University, Fairfax, VA, United States
Session Organizer: Xin Wang, SIUE, Edwardsville, IL, United States
Grasp Force Sensing Using Visual Servoing And Fingernail Imaging
Technical Paper Publication. DSCC2018-9097
Navid Fallahinia, The University of Utah, Salt Lake City, UT, United States, Sonoma Harris, University of Utah, Bountiful, UT, United States, Stephen Mascaro, Univ Of Utah, Salt Lake City, UT, United States

Analytical and Experimental Predictor-Based Time Delay Control of Baxter Robot
Technical Paper Publication. DSCC2018-9101
Mostafa Bagheri, UC San Diego & San Diego State Univ., La Jolla, CA, United States, Miroslav Krstic, University of California, San Diego, La Jolla, CA, United States, Peiman Naserradinmousavi, San Diego State University, San Diego, CA, United States

Foveation Control Of A Robotic Eye Using Deep Reinforcement Learning
Technical Paper Publication. DSCC2018-9209
Sunil Kumar Rajendran, Qi Wei, Feitian Zhang, George Mason University, Fairfax, VA, United States

OMNIDIRECTIONAL FORCE FEEDBACK FOR TELEOPERATION OF OMNIDIRECTIONAL WHEELED ROBOTS
Technical Paper Publication. DSCC2018-9122
Rajat Tyagi, University of Utah, Salt Lake City, UT, United States, Stephen Mascaro, Univ Of Utah, Salt Lake City, UT, United States

Stiffness Control of Parallel Continuum Robots
Technical Paper Publication. DSCC2018-9112
Vincent Aloi, University of Tennessee, Knoxville, TN, United States, Caroline Black, University of Alabama, Huntsville, Huntsville, AL, United States, Caleb Rucker, University of Tennessee, Knoxville, TN, United States

DMD-based Distributed Flow Sensing for Bio-Inspired Autonomous Underwater Robots
Technical Paper Publication. DSCC2018-9113
Fengying Dang, Feitian Zhang, George Mason University, Fairfax, VA, United States

TRACK 2 Invited Papers

2-4TA3 MODELING AND MANAGEMENT OF POWER SYSTEMS
Lower Level 3, Piedmont  10:00am - 12:00pm

Session Chair: John Hall, University At Buffalo, Buffalo, NY, United States
Session Co-Chair: Fenglin Zhou, University of Texas at Dallas, Richardson, TX, United States
Session Organizer: Satadru Dey, University of Colorado Denver, Aurora, CO, United States
Second Law Modeling and Robust Control for Thermal-Fluid Systems
Technical Paper Publication. DSCC2018-9056
Austin Nash, Purdue University, Lafayette, IN, United States, Neera Jain, Purdue University, West Lafayette, IN, United States

AN ECONOMIC MODEL PREDICTIVE CONTROL APPROACH FOR WIND POWER SMOOTHING AND TOWER LOAD MITIGATION
Technical Paper Publication. DSCC2018-9032
Mohamed Alhneaish, Mohamed Shaltout, Sayed Metwalli, Cairo University, Giza, Giza, Egypt
Integrative Modeling Platform for Design and Control of an Adaptive Wind Turbine Blade
Technical Paper Publication. DSCC2018-9235
Hamid Khakpour Nejadkhaki, University at Buffalo, State University, Buffalo, NY, United States, John Hall, University At Buffalo, Buffalo, NY, United States, Minghui Zheng, UC Berkeley, Berkeley, CA, United States, Teng Wu, University at Buffalo, State University, Buffalo, NY, United States

Modeling Li-ion Battery Thermal Runaway Using A Three Section Thermal Model
Technical Paper Publication. DSCC2018-9086
Ting Cai, University of Michigan, Ann Arbor, MI, United States, Anna Stefanopoulou, Jason Siegel, Unv Of Michigan, Ann Arbor, MI, United States

Modeling and Optimal Control of MicroCSP and a Building HVAC System to Minimize Electricity Cost
Technical Paper Publication. DSCC2018-9131
Chethan Reddy, Michigan technological university, houghton, MI, United States, Mohamed Toub, Mohammed V University of Rabat, Rabat, Morocco, Meysam Razmara, Mahdi Shahbakti, Rush Robinett III, Michigan Technological University, Houghton, MI, United States, Ghassane Aniba, Mohammed V University of Rabat, Rabat, Select State/Province, Morocco

Energy Management of Smart Community with EV Charging using Distributed Model Predictive Control
Technical Paper Publication. DSCC2018-9240
Fenglin Zhou, Yaoyu Li, Wenyi Wang, University of Texas at Dallas, Richardson, TX, United States

2-6TA6 Biomedical and Neural Systems Modeling, Diagnostics and Healthcare
Lower Level 3, Spring 10:00am - 12:00pm
Session Chair: Ken Oldham, University of Michigan, Ann Arbor, MI, United States
Session Co-Chair: Xiaopeng Zhao, University of Tennessee, Knoxville, TN, United States
Session Organizer: Jin Oh Hahn, University of Maryland, College Park, MD, United States

Experimental Walking to Running Transition
Technical Paper Publication. DSCC2018-9041
Salvador Alcorta, Dumitru Caruntu, University of Texas Rio Grande Valley, Edinburg, TX, United States

Identification of Compensatory Arterial Dynamics in Swine using a Non-Invasive Sensor for Local Vascular Resistance
Technical Paper Publication. DSCC2018-9063
Lu Wang, Sardar Ansari, Kevin Ward, Kayvan Najarian, Ken Oldham, University of Michigan, Ann Arbor, MI, United States

A Reduced Order Model for Spatiotemporal Dynamics and Control of Cardiac Alternans
Technical Paper Publication. DSCC2018-9071
Xiaopeng Zhao, University of Tennessee, Knoxville, TN, United States, Elena Tolkacheva, University of Minnesota, Minneapolis, TN, United States

A Comprehensive Framework for Simulating Dynamics of an Off-road Vehicle in Unconstructed Environments
Technical Paper Publication. DSCC2018-9189
Shahab Karimi, Ardalan Vahidi, Clemson University, Clemson, SC, United States, Paramsothy Jayakumar, U.S. Army Tardec, Warren, MI, United States

Transient Dynamics of Harmonic Devices under Thermal Loading
Technical Paper Publication. DSCC2018-9111
Heshan Unamboowe, Amit Shukla, Miami University, Oxford, OH, United States

Modeling of Collective Cell Behaviors Interacting with Extracellular Matrix Using Dual Faceted Linearization
Technical Paper Publication. DSCC2018-9164
Michaelle Mayalu, Caltech, Pasadena, CA, United States, Haruhiko Asada, Mass Inst Of Tech, Cambridge, MA, United States, Min-Cheol Kim, MIT, Cambridge, MA, United States

Tendon Tapping Stimulus Characterization Through Contact Modeling
Technical Paper Publication. DSCC2018-9246
Waiman Meinhold, Jun Ueda, Georgia Institute of Technology, Atlanta, GA, United States

Track 1 Contributed Papers

1-30TM1 Automotive Systems
Lower Level 3, Inman 1:30pm - 3:30pm
Session Chair: Rasoul Salehi, University of Michigan, Ann Arbor, MI, United States
Session Co-Chair: Jing Wang, Ford Motor Company, Dearborn, MI, United States

An Online Model Predictive Control Framework for Robot Driver Speed Control
Technical Paper Publication. DSCC2018-8957
Jing Wang, Yan Wang, Dimitar Filev, Ford Motor Company, Dearborn, MI, United States

Energy-efficient Control Approach for Automated HEV and BEV with Short-horizon Preview Information
Technical Paper Publication. DSCC2018-8980
Jinwoo Seok, University of Michigan, Ann Arbor, MI, United States, Yan Wang, Dimitar Filev, Ford Motor Company, Dearborn, MI, United States, Ilya Kolmanovsky, The University of Michigan, Ann Arbor, Ann Arbor, MI, United States, Anouck Girard, University of Michigan, Ann Arbor, MI, United States

Sensitivity Analysis of Drivetrain Oscillations
Technical Paper Publication. DSCC2018-8965
Matthias Foerth, Technical University of Munich, Garching, Bavaria, Germany, Junya Ota, Toyota Motor Corporation, Susono, Japan, Markus Lienkamp, Technical University of Munich, Garching, Bavaria, Germany

Analysis of Tire Relaxation Constants for Modeling Vehicle Traction Performance and Handling
Technical Paper Publication. DSCC2018-9026
Vladimir Vantsevich, The University of Alabama at Birmingham, Birmingham, AL, United States, Lyubomyr Demkiv, Sviatoslav Klos, Lviv Polytechnic National University, Lviv, Ukraine

A Comprehensive Framework for Simulating Dynamics of an Off-road Vehicle in Unconstructed Environments
Technical Paper Publication. DSCC2018-9189
Shahab Karimi, Ardalan Vahidi, Clemson University, Clemson, SC, United States, Paramsothy Jayakumar, U.S. Army Tardec, Warren, MI, United States
Utilization of ADAS for Improving Idle Stop-and-Go Control
Technical Paper Publication. DSCC2018-8931
Kwangwoo Jeong, HATCI, Superior Charter Township, MI, United States, Hoon Lee, Hyundai-Kia America Technical Center Inc., Superior Township, MI, United States, Jaihyun Lee, Sang-hoon Yoo, Byungho Lee, Sejun Kim, Hyundai-Kia America Technical Center Inc., Superior Charter Township, MI, United States

1-36TM2 MULTI-AGENT AND NETWORKED SYSTEMS
II
Technical Paper Publication. DSCC2018-8944
Ayse Tekes, Adeel Khalid, Niko Giannakakos, Alexander Bryant, Kennesaw State University, Marietta, GA, United States

STABILITY ANALYSIS IN MEAN-FIELD GAMES VIA AN EVANS FUNCTION APPROACH
Technical Paper Publication. DSCC2018-8926
Piyush Grover, Mitsubishi Electric Research Laboratories, Cambridge, MA, United States

Numerical Evaluation of Pressure Drop across Orifices for Different Gas-Liquid Mixtures
Technical Paper Publication. DSCC2018-1820
Zurwa Khan, Texas A&M University At Qatar, Doha, Qatar, Reza Tafreshi, Texas A&M University At Qatar, College Station, TX, United States, Matthew Franchek, Karolos Grigoriadis, University of Houston, Houston, TX, United States

Further Results on Finite-Time Distributed Control of Multi-agent Systems with Time Transformation
Technical Paper Publication. DSCC2018-8959
Ehsan Arabi, Tansel Yucelen, University of South Florida, Tampa, FL, United States, John R. Singler, Missouri University of Science and Technology, Rolla, MO, United States

Distributed Coordination of a Multi-agent System with Intermittent Communication: A Switched Systems Approach
Technical Paper Publication. DSCC2018-8954
Federico Zegers, Hsi-Yuan Chen, Patryk Deptała, Warren Dixon, University of Florida, Gainesville, FL, United States

1-27TM3 DYNAMICS AND CONTROL OF RENEWABLE ENERGY SYSTEMS
Lower Level 3, Piedmont 1:30pm - 3:30pm
Session Chair: Verica Radisavljevic-Gajic, Villanova University, Villanova, PA, United States
Session Co-Chair: Joseph Deese, University of North Carolina At Charlotte, Charlotte, NC, United States
Session Organizer: Tuinh Das, University of Central Florida, Orlando, FL, United States

PROPORTIONAL POWER SHARING CONSENSUS IN DISTRIBUTED GENERATORS
Technical Paper Publication. DSCC2018-9023
Farzad Aalipour, Tuinh Das, University of Central Florida, Orlando, FL, United States

Dynamic Analyses of Directional Drilling Using Curved Beam Theorem
Technical Paper Publication. DSCC2018-9020
Tianheng Feng, The University of Texas at Austin, Austin, TX, United States, Qiuying Gu, Inho Kim, Halliburton, Houston, TX, United States, Dongmei Chen, The University of Texas at Austin, Austin, TX, United States

FUSED CLOSED-LOOP FLIGHT DYNAMICS AND WAKE INTERACTION MODELING OF TETHERED ENERGY SYSTEMS
Technical Paper Publication. DSCC2018-9190
Joseph Deese, Peyman Razi, University of North Carolina At Charlotte, Charlotte, NC, United States, Michael Muglia, University of North Carolina, Wanchese, NC, United States, Praveen Ramaprabhu, Christopher Vermillion, University Of North Carolina At Charlotte, Charlotte, NC, United States

OPTIMIZED LINEAR-PROPORTIONAL INTEGRAL FEEDBACK CONTROLLER DESIGN WITH DISTURBANCE REJECTION FOR PROTON EXCHANGE MEMBRANE FUEL CELL
Technical Paper Publication. DSCC2018-9225
Milos Milanovic, Villanova University, Villanova, PA, United States, Verica Radisavljevic-Gajic, Villanova University, Villanova, PA, United States

Weighted-Least Squares Optimization Method for Control and Shape Design of an Adaptive Blade Twist Distribution to Increase Wind Capture
Technical Paper Publication. DSCC2018-9233
Fuzhao Mou, Hamid Khakpour Nejadkhaki, Aaron Estes, University at Buffalo, State Universit, Buffalo, NY, United States, John Hall, University At Buffalo, Buffalo, NY, United States

1-24TM5 ASSISTIVE AND REHABILITATION ROBOTICS
Lower Level 3, Techwood 1:30pm - 3:30pm
Session Chair: Hakki Erhan Sevil, The University of Texas at Arlington Research Institute (UTARI), Fort Worth, TX, United States
Session Co-Chair: Courtney Rouse, University of Florida, Gainesville, FL, United States
Session Organizer: Zheng Chen, University of Houston, Houston, TX, United States

A Bowden Cable-Based Series Elastic Actuation Module for Assessing the Human Wrist
Technical Paper Publication. DSCC2018-8963
Andrew Erwin, Nick Moser, Craig G. McDonald, Marcia K. O'Malley, Rice University, Houston, TX, United States
Latent Variable Grasp Prediction for Exoskeletal Glove Control
Technical Paper Publication. DSCC2018-8978
Raghuraj Chauhan, Pinhas Ben-Tzvi, Virginia Tech, Blacksburg, VA, United States

Stable Cadence Tracking of Admitting Functional Electrical Stimulation Cycle
Technical Paper Publication. DSCC2018-8989
Christian Cousin, Victor Duenas, Courtney Rouse, Warren Dixon, University of Florida, Gainesville, FL, United States

Design Optimization of RML Glove for Improved Grasp Performance
Technical Paper Publication. DSCC2018-9004
Teja Vantreddu, Virginia Tech, Blacksburg, VA, United States, Bijo Sebastian, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States, Pinhas Ben-Tzvi, Virginia Tech, Blacksburg, VA, United States

Reachability Analysis For Robustness Evaluation Of The Sit-To-Stand Movement For Powered Lower Limb Orthoses
Technical Paper Publication. DSCC2018-9066
Octavio Narvaez-Aroche, University of California, Berkeley, Berkeley, CA, United States, Pierre-Jean Meyer, Murat Arcak, Andrew Packard, University of California Berkeley, Berkeley, CA, United States

Implementation of Object Fetching Task and Human Subject Tests Using an Assistive Robot
Technical Paper Publication. DSCC2018-9248
Ankur Vipul Kumar Dalal, Almikya Mahadeo Ghadge, Cody Lee Lundberg, Jeongskik Shin, Pakki Erhan Suli, The University of Texas at Arlington Research Institute (UTARI), Fort Worth, TX, United States, Deborah Balkin, The University of Texas at Arlington, Arlington, TX, United States, Dan O. Popa, The University of Louisville, Louisville, KY, United States

1-29TM6 ENERGY SYSTEMS
Lower Level 3, Spring 1:30pm - 3:30pm

Comparison Of Individual-Electrode State Of Health Estimation Methods For Lithium Ion Battery
Technical Paper Publication. DSCC2018-9014
Suhak Lee, University of Michigan, Ann Arbor, MI, United States, Jason Siegel, Anna Stefanopoulou, Univ Of Michigan, Ann Arbor, MI, United States, Jang-Woo Lee, Tae-Kyung Lee, Samsung SDI Co., Ltd., Yongin-si, Korea (Republic)

Modeling of a Linear Power Generator Driven by a Pulse Detonation Engine
Technical Paper Publication. DSCC2018-9055
Umang Dighe, Frank K Lu, The University of Texas at Arlington, Arlington, TX, United States

Solid-State Battery Modeling Case Studies for the Analysis of a Micro-Robot Power System
Technical Paper Publication. DSCC2018-9060
Kendall Teichert, Trine University, Angola, IN, United States, Kenn Oldham, University of Michigan, Ann Arbor, MI, United States

LARGE SIGNAL STABILITY ANALYSIS OF A HYBRID AC/DC MICROGRID WITH A CASCADED CONTROL INVERTER
Technical Paper Publication. DSCC2018-9163
Hongru Xu, Yan Chen, Arizona State University, Mesa, AZ, United States, Brian Keel, Salt River Project Corp., Scottsdale, AZ, United States

TRACK 2 Invited Papers

2-7TM4 VIBRATIONS: MODELING, ANALYSIS, AND CONTROL (I)
Lower Level 3, Lenox 1:30pm - 3:30pm

Session Chair: Dumitru Caruntu, University of Texas Rio Grande Valley, Edinburg, TX, United States
Session Co-Chair: Weidong Zhu, Univ Of Maryland, Baltimore Ctr, Baltimore, MD, United States
Session Organizer: Junmin Wang, Ohio State University, Columbus, OH, United States, Hai-Jun Su, The Ohio State University, Columbus, OH, United States

Experimental and Numerical Analysis of a Sandwich Beam with Tip Mass
Technical Paper Publication. DSCC2018-9006
Siyang Song, Ohio State University, Columbus, OH, United States, Yu She, The Ohio State University, Columbus, OH, United States, Junmin Wang, Ohio State University, Columbus, OH, United States

EXPERIMENTAL INVESTIGATION ON VIBRATION DAMPING CHARACTERISTICS OF MAGNETORHEOLOGICAL DAMPER
Technical Paper Publication. DSCC2018-9214
Ming Cheng, Harbin Institute of Technology, Harbin, China, Zhaobo Chen, Harbin Inst Of Tech, Harbin, Heilongjiang, China, S. Nima Mahmoodi, The University of Alabama, Tuscaloosa, AL, United States
Voltage Response for Parametrically Actuated MEMS Cantilever Beam using Homotopy Analysis Method and Method of Multiple Scales
Technical Paper Publication. DSCC2018-9012
Christopher Reyes, The University of Texas Rio Grande Valley, Edinburg, TX, United States, Dumitrucaruntu, University of Texas Rio Grande Valley, Edinburg, TX, United States

Performance evaluation of train suspension energy harvesting shock absorber on railway vehicle dynamics
Technical Paper Publication. DSCC2018-9002
Yangli Shao, Zongxuan Sun, University of Minnesota, Minneapolis, MN, United States

Theoretical and Experimental Analysis of Coupled Flexural-Torsional Vibrations of Rotating Beams
Technical Paper Publication. DSCC2018-9050
Mohammad Javad Khodaei, Amin Mehrvarz, Nicholas Candelino, Nader Jalili, Northeastern University, Boston, MA, United States

Technical Paper Publication. DSCC2018-9054
Roshan Pradhan, Aditya Katyayan, Birla Institute of Technology and Science, Pilani, Pilani, Rajasthan, India

Stabilization of Traffic Flow with Autonomous Vehicles
Technical Paper Publication. DSCC2018-9239
Huan Yu, University of California, San Diego, San Diego, CA, United States, Shumon Koga, University of California San Diego, San Diego, CA, United States, Miroslav Krstic, University of California, San Diego, La Jolla, CA, United States

A Robust and Optimal Visual Tracking with Blocking Obstacles and Reflection Noises
Technical Paper Publication. DSCC2018-9162
Xiongfeng Yi, Zheng Chen, University of Houston, Houston, TX, United States

1-1TE2 MECHATRONICS I
Lower Level 3, Kennesaw 4:00pm - 6:00pm
Session Chair: Min Li, Georgia Inst. of Tech., Norcross, GA, United States
Session Co-Chair: Gregory D. Buckner, North Carolina State University, Raleigh, NC, United States
Session Organizer: Huazhen Fang, University of Kansas, Lawrence, KS, United States
Nonlinear Dynamic Analysis of a Polydyne Cam with Translating Roller Follower Mechanism with Clearance
Technical Paper Publication. DSCC2018-8901
Louay S. Yousuf, Auburn University, WALLED LAKE, MI, United States

Sliding mode control of low cost pressure sensor calibration device
Technical Paper Publication. DSCC2018-9033
Chang-Min Lee, Paulo M. Ahn, Sungmoon Kim, Kwang Hoong Gwak, Sejong University, Seoul, Korea (Republic)

Modeling and Control of a Novel Variable-Stiffness Regenerative Actuator
Technical Paper Publication. DSCC2018-9074
Erlivelton Guater Dos Santos, Cleveland State University, Cleveland, OH, United States, Hanz Richter, Cleveland State Univ, Cleveland, OH, United States

Finite Element Analysis-Based Modeling and Feedback Linearizing Control of a Large Air Gap Magnetic Levitator
Technical Paper Publication. DSCC2018-9074
Samuel Miller, Gregory D. Buckner, North Carolina State University, Raleigh, NC, United States

Hysteresis Compensation Using Extended High-Gain Observer and Dynamic Inversion
Technical Paper Publication. DSCC2018-9082
Dhruvajit Chowdhury, Yasir Khudhair Al-Nadawi, Xiaobo Tan, Michigan State University, East Lansing, MI, United States

A NOVEL CURRENT-INTERFERENCE SCANNING METHOD FOR DETECTION OF ABNORMAL TISSUES
Technical Paper Publication. DSCC2018-9175
Kok Meng Lee, Georgia institute of technology, Atlanta, GA, United States, Junwei Li, Huazhong University of Science and Technology, Wuhan, China, Kun Bai, Huazhong Univ of Sci and Tech, Wuhan Hubei, China

1-13TE1 INTELLIGENT TRANSPORTATION AND VEHICLES
Lower Level 3, Inman 4:00pm - 6:00pm
Session Chair: Amirhossein Ghasemi, University of North Carolina Charlotte, Charlotte, NC, United States
Session Co-Chair: Zongxuan Sun, University Of Minnesota, Minneapolis, MN, United States
Session Organizer: Zhaojian Li, Michigan State University, East Lansing, MI, United States

Integrated Steering and Braking Control System for Collision Avoidance by Using Virtual Repulsive Force Field Method
Technical Paper Publication. DSCC2018-8907
Atsushi Yokoyama, Hitachi America, Ltd., Farmington Hills, MI, United States, Pongsathorn Raksincharoenak, Naoto Yoshikawa, Tokyo University of Agriculture and Technology, Koganei, Tokyo, Japan

Game Theoretic Modeling of a Steering Operation in a Haptic Shared Control Framework
Technical Paper Publication. DSCC2018-9105
Amirhossein Ghasemi, University of North Carolina Charlotte, Charlotte, NC, United States

Vehicle dynamics of permanent-magnet levitation based Hyperloop capsules
Technical Paper Publication. DSCC2018-9130
Roshan Pradhan, Aditya Katyayan, Birla Institute of Technology and Science, Pilani, Pilani, Rajasthan, India
1-16TE4 VIBRATION IN MECHANICAL SYSTEMS
Lower Level 3, Lenox 4:00pm - 6:00pm

Session Chair: Mark Jankauski, Montana State University, Bozeman, MT, United States
Session Co-Chair: Weidong Zhu, Univ Of Maryland, Baltimore Ct, Baltimore, MD, United States, Subramanian Ramakrishnan, University of Minnesota at Duluth, Duluth, MN, United States
Could chalk hopping be caused by reverse chatter?
Technical Paper Publication. DSCC2018-8906
John W. Sanders, California State University Fullerton, Fullerton, CA, United States

On Steady-State Solutions of a Wave Equation by Solving a Delay Differential Equation with an Incremental Harmonic Balance Method
Technical Paper Publication. DSCC2018-8933
Xuefeng Wang, Georgia Institute of Technology, Atlanta, GA, United States, Mao Liu, University of Maryland, Baltimore County, Baltimore, MD, United States, Weidong Zhu, Univ Of Maryland, Baltimore Ct, Baltimore, MD, United States

Passive Pitch Mechanics of Elastic Flapping Wings
Technical Paper Publication. DSCC2018-8942
Mark Jankauski, Montana State University, Bozeman, MT, United States

Monitoring and control of workpiece vibrations using proportional hydraulic clamping mechanism
Technical Paper Publication. DSCC2018-8964
Manisha Yadav, Govt. College of Engineering, Karad, Karad, India, Suhas Mohite, Government College of Engineering, Karad, Karad, India

Control Oriented Dynamic Modeling of A Tension Leg Platform Based Floating Offshore Wind Turbine with Dynamic Vibration Absorbers
Technical Paper Publication. DSCC2018-9084
Zhongyou Wu, The University of Texas at Dallas, Richardson, TX, United States, Yaoyu Li, University of Texas Dallas, Richardson, TX, United States

1-14TE5 ASSISTIVE AND REHABILITATION ROBOTICS II
Lower Level 3, Techwood 4:00pm - 6:00pm

Session Chair: Manish Kumar, University of Cincinnati, Cincinnati, OH, United States
Session Co-Chair: Christian Cousin, University of Florida, Gainesville, FL, United States
Session Organizer: Seok Chang Ryu, Texas A&M University, College Station, TX, United States
Development and Experimental Validation of an Energy Regenerative Prosthetic Knee Controller and Prototype
Technical Paper Publication. DSCC2018-9091
Poya Khalaf, Holly Warner, Cleveland State University, Cleveland, OH, United States, Elizabeth Hardin, Cleveland FES Center, Motion Study Laboratory, Cleveland, OH, United States, Hanz Richter, Cleveland State Univ, Cleveland, OH, United States, Daniel Simon, Cleveland State University, Cleveland, OH, United States

Varying Motor Assistance During Biceps Curls Induced Via Functional Electrical Stimulation
Technical Paper Publication. DSCC2018-9083
Courtney Rouse, Christian Cousin, Victor Duenas, Warren Dixon, University of Florida, Gainesville, FL, United States

Development of a Motorized Robotic Walker Guided by an Image Processing System for Human Walking Assistance and Rehabilitation
Technical Paper Publication. DSCC2018-9223
Tao Shen, Md Rayhan Afsar, The University of Alabama, Tuscaloosa, AL, United States, He Zhang, University of Arkansas at Little Rock, Little Rock, AR, United States, Cang Ye, Virginia Commonwealth University, Richmond, VA, United States, Xiangrong Shen, The University of Alabama, Tuscaloosa, AL, United States

Parallel Deep Learning Ensembles for Human Pose Estimation
Technical Paper Publication. DSCC2018-9007
Hailin Ren, Anil Kumar, Xinran Wang, Pinhas Ben-Tzvi, Virginia Tech, Blacksburg, VA, United States

A Robotic Ankle-Foot Orthosis for Daily-Life Assistance and Rehabilitation
Technical Paper Publication. DSCC2018-9242
MD Rejwanul Haque, University of Alabama, Tuscaloosa, AL, United States, Hao Zheng, Saroj Thapa, The University of Alabama, Tuscaloosa, AL, United States, Geza Kogler, Georgia Institute of Technology, Atlanta, GA, United States, Xiangrong Shen, The University of Alabama, Tuscaloosa, AL, United States

1-44TE6 ENERGY SYSTEMS II
Lower Level 3, Lenox 4:00pm - 6:00pm

Session Chair: Pierluigi Pisu, Clemson University, xX, NC, United States
Session Co-Chair: Donald J. Docimo, University of Illinois at Urbana-Champaign, Urbana, IL, United States
Session Organizer: Azad Ghaffari, UC San Diego, San Diego, CA, United States
Hierarchical Control for Electro-Thermal Power Management of an Electric Vehicle Powertrain
Technical Paper Publication. DSCC2018-9215
Donald J. Docimo, Herschel C. Pangborn, University of Illinois at Urbana-Champaign, Urbana, IL, United States, Andrew G. Alleyne, Univ Of Illinois, Urbana, IL, United States

Fault Detection And Isolation For Complex Thermal Management Systems
Technical Paper Publication. DSCC2018-9132
Pamela Tannous, University of Illinois at Urbana-Champaign, Urbana, IL, United States, Andrew G. Alleyne, Univ Of Illinois, Urbana, IL, United States

Inter-Area Oscillation Damping in Large-Scale Power Systems using Decentralized Control
Technical Paper Publication. DSCC2018-9119
Roghieh A. Biroon, Clemson university, Greenville, SC, United States, Pierluigi Pisu, Clemson University, Clemson, SC, United States, David Schoenwald, Sandia National Lab, Albuquerque, NM, United States
Model Predictive control of a pumped two-phase cooling system with microchannel heat exchangers
Technical Paper Publication. DSCC2018-9143
Oyuna Angatkina, University of Illinois at Urbana-Champaign, Urbana, IL, United States, Andrew G. Alleyne, Univ Of Illinois, Urbana, IL, United States

OPTIMAL SCHEDULING OF HOME ENERGY MANAGEMENT SYSTEM WITH PLUG-IN ELECTRIC VEHICLES USING MODEL PREDICTIVE CONTROL
Technical Paper Publication. DSCC2018-9159
Yue Zhao, Arizona State University, Gilbert, AZ, United States, Yan Chen, Arizona State University, Mesa, AZ, United States, Brian Keel, Salt River Project Corp., Scottsdale, AZ, United States

On the Vibration Suppression and Energy Harvesting of Building Structures Using an Electromagnetic-Inerter-Absorber
Technical Paper Publication. DSCC2018-9187
Es'hagh Farzaneh Joubanbeh, Central Michigan University, Mount Pleasant, MI, United States, Oumar Barry, Virginia Tech, Blacksburg, VA, United States, Lei Zuo, Virginia Tech, Blacksburg, VA, United States

WEDNESDAY, OCTOBER, 03

TRACK 1 Contributed Papers

1-8WA1 ADVANCES IN NONLINEAR CONTROL
Lower Level 3, Inman 10:00am - 12:00pm

A Modified Active Anti-Disturbance Control for a Nonlinear CSTR Model
Technical Paper Publication. DSCC2018-8917
Sudeshna Dasgupta, Meghnad Saha Institute of Technology, Kolkata, West Bengal, India

Event Triggered Neuroadaptive Controller (ETNAC) Design for Uncertain Affine Nonlinear Systems
Technical Paper Publication. DSCC2018-9103
Abdul Ghafoor, Missouri University of Sciences and Technology, Rolla, Missouri, USA, Rolla, MO, United States, Jie Yao, Mechanical Engineering, Missouri University of Sciences and Technology, Rolla, MO, United States, S.N. Balakrishnan, Jagannathan Sarangapani, Missouri University of Sciences and Technology, Rolla, MO, United States, Tansel Yucelen, University of South Florida, Tampa, FL, United States

Adaptive Robust Control of a 7-DoFs Teleoperation Robot System with Payload variations and disturbances
Technical Paper Publication. DSCC2018-9168
Jinfei Hu, Mingxing Yuan, Zheng Chen, Zhejiang University, hangzhou, zhejiang, China, Bin Yao, Purdue Univ, West Lafayette, IN, United States

COLLABORATIVE CONTROL OF MULTIPLE ROBOTS USING GENETIC FUZZY SYSTEMS APPROACH
Technical Paper Publication. DSCC2018-9027
Anoop Sathyan, Ou Ma, University of Cincinnati, Cincinnati, OH, United States
1-31WA2 MECHATRONICS II  
Lower Level 3, Kennesaw  10:00am - 12:00pm

Session Chair: John Wagner, Clemson Univ, Clemson, SC, United States  
Session Co-Chair: Kam K. Leang, University of Utah, Salt Lake City, UT, United States  
Session Organizer: Mohammad Al Janaideh, Memorial University of Newfoundland, St. John’s, NL, Canada

AN ATMOSPHERIC ENERGY HARVESTER SYSTEM - LINEAR MODEL AND TEST  
Technical Paper Publication. DSCC2018-9150
Sneha Ganesh, Todd Schweisinger, Clemson University, Clemson, SC, United States, John Wagner, Clemson Univ, Clemson, SC, United States

Lissajous-like Scan Pattern for a Nodding Multi-Beam LIDAR  
Technical Paper Publication. DSCC2018-9169
Michael Benson, Jonathan Nikolaidis, Garrett Clayton, Villanova University, Villanova, PA, United States

EDDY-CURRENT DYNAMIC MODEL FOR SIMULTANEOUS GEOMETRICAL AND MATERIAL PARAMETER MEASUREMENTS OF MAGNETIC MATERIALS  
Technical Paper Publication. DSCC2018-9211
Bingjie Hao, Huazhong Univ. of Sci. and Tech., Wuhan, China, Kok Meng Lee, Georgia institute of technology, Atlanta, GA, United States, Kun Bai, Huazhong Univ of Sci and Tech, Wuhan Hubei, China

A DISTRIBUTED-PARAMETER CONTROL SYSTEM USING ELECTROMAGNETIC IMAGES STIMULATION FOR HUMAN-MACHINE PERCEPTION INTERFACE  
Technical Paper Publication. DSCC2018-9225
Min Li, Georgia Inst. of Technology, Atlanta, GA, United States, Kok Meng Lee, Georgia institute of technology, Atlanta, GA, United States

DEVELOPMENT OF A 3-DOF TRIPEDAL STICK-SLIP MICRO-MOBILE PLATFORM FOR UNCONSTRAINED, OMNIDIRECTIONAL SAMPLE POSITIONING  
Technical Paper Publication. DSCC2018-9229
Iman Adibnazari, William S. Nagel, Kam K. Leang, University of Utah, Salt Lake City, UT, United States

Towards Automated Bicycles: Achieving Self-Balance Using Steering Control  
Technical Paper Publication. DSCC2018-9244
Wenhao Deng, Skyler Moore, Jonathan Bush, Miles Mabey, Wenlong Zhang, Arizona State University, Mesa, AZ, United States

1-12WA3 MANUFACTURING  
Lower Level 3, Piedmont  10:00am - 12:00pm

Session Chair: Qian Wang, Penn State Univ, University Park, PA, United States  
Session Co-Chair: Beshah Ayalew, Clemson University, Greenville, SC, United States, Lu Lu, New Jersey Institute of Technology, Newark, NJ, United States  
Session Organizer: Mohammad Al Janaideh, Memorial University of Newfoundland, St. John’s, NL, Canada

Towards Computational Modeling of Temperature Field Evolution in Directed Energy Deposition Processes  
Technical Paper Publication. DSCC2018-8973
Jianyi Li, Penn State University, University Park, PA, United States, Qian Wang, Penn State Univ, University Park, PA, United States, Abdalla R. Nassar, Edward W. Reutzel, Wesley Mitchell, ARL/Penn State, University Park, PA, United States

Build Height Control in Directed Energy Deposition Using a Model-Based Feed-Forward Controller  
Technical Paper Publication. DSCC2018-9058
Qian Wang, Penn State Univ, University Park, PA, United States, Jianyi Li, Penn State University, University Park, PA, United States, Abdalla R. Nassar, Edward W. Reutzel, Wesley Mitchell, ARL/Penn State, University Park, PA, United States

Optimal Switching Time Control of UV Induced Cationic Curing Process  
Technical Paper Publication. DSCC2018-9114
Shiferaw Beyene, Clemson, Greenville, SC, United States, Beshah Ayalew, Srikanth Pilla, Clemson University, Greenville, SC, United States

Improved Cross-Coupled Iterative Learning Control for Contouring NURBS Curves.  
Technical Paper Publication. DSCC2018-9145
Ashley Armstrong, University of Illinois, Urbana, IL, United States, Amy Wagoner Johnson, Univ of Illinois At Urbana-Champaign, Urbana, IL, United States, Andrew G. Alleyne, Univ Of Illinois, Urbana, IL, United States

Technical Paper Publication. DSCC2018-9245
Weitian Wang, Na Liu, Rui Li, Yi Chen, Yunyi Jia, Clemson University, Greenville, SC, United States
1-4WA4 ESTIMATION AND IDENTIFICATION  
Lower Level 3, Lenox  10:00am - 12:00pm

Session Chair: Subramanian Ramakrishnan, University of Minnesota at Duluth, Duluth, MN, United States  
Session Co-Chair: Xin Wang, SIUE, Edwardsville, IL, United States  
Session Organizer: Chang Duan, Prairie View A&M, Prairie View, TX, United States

Crane guidance gesture tracking and recognition with nonlinear estimation and fuzzy logic  
Technical Paper Publication. DSCC2018-8932  
Xin Wang, SIUE, Edwardsville, IL, United States, Chris Gordon, Southern Illinois University Edwardsville, Edwardsville, IL, United States, Edwin Yaz, Marquette University, Milwaukee, WI, United States

State and Output Estimations for a Class of Nonlinear Dynamic Systems with Highly Cross-sensitive Output Measurements  
Technical Paper Publication. DSCC2018-9136  
Brandon Childress, Pingen Chen, Tennessee Technological University, Cookeville, TN, United States

Vision Based Surface Slope Estimation for Unmanned Aerial Vehicle Perching  
Technical Paper Publication. DSCC2018-9210  
Haijie Zhang, Jianguo Zhao, Colorado State University, Fort Collins, CO, United States

Behavior Inference from Bio-logging Sensors: A Systematic Approach for Feature Generation, Selection and State Classification  
Technical Paper Publication. DSCC2018-9213  
Ding Zhang, K. Alex Shorter, University of Michigan, Ann Arbor, MI, United States, Julie Rocho-Levine, Dolphin Quest Oahu, Honolulu, HI, United States, Michael Moore, Woods Hole Oceanographic Institution, Woods Hole, MA, United States, Kira Barton, University of Michigan, Ann Arbor, MI, United States

Stochastic Stability Of A Piezoelectric Vibration Energy Harvester And Stabilization Using Noise  
Technical Paper Publication. DSCC2018-9216  
Subramanian Ramakrishnan, University of Minnesota at Duluth, Duluth, MN, United States, Connor Edlund, University of Minnesota Duluth, Duluth, MN, United States

A Passivity-Based Regressor-Free Adaptive Controller for Robot Manipulators with Combined Regressor/Parameter Estimation  
Technical Paper Publication. DSCC2018-9010  
Donald Ebeigbe, Daniel Simon, Cleveland State University, Cleveland, OH, United States

1-9WA5 TRACKING CONTROL SYSTEMS  
Lower Level 3, Techwood  10:00am - 12:00pm

Session Chair: Jingang Yi, Rutgers State University, Piscataway, NJ, United States  
Session Co-Chair: Ahmet AYDOGAN, University of Southampton, Southampton, United Kingdom, Xiaojun Ban, Harbin Institute of Technology, Harbin, Heilongjiang, China

Dynamic Modeling and Computed Torque Control of Flexure Jointed TVC Systems  
Technical Paper Publication. DSCC2018-8987  
Ahmet AYDOGAN, University of Southampton, Southampton, United Kingdom, Ozgur Hasturk, Roketsan Missile Industries Inc., Ankara, Turkey, Eric Rogers, University of Southampton, Southampton, United Kingdom

Application of Mixed H2/H-infinity Data Driven Control Design to Dual Stage Hard Disk Drives  
Technical Paper Publication. DSCC2018-9094  
Omid Bagherieh, Prateek Shah, University of California Berkeley, Berkeley, CA, United States, Roberto Horowitz, Univ Of California, Berkeley, CA, United States

Robust Filtered Basis Functions Approach for Feedforward Tracking Control  
Technical Paper Publication. DSCC2018-9196  
Keval Ramani, Chinedum Okwudire, University of Michigan, Ann Arbor, MI, United States

Disturbance Observer Based Model Predictive Control For ROV Trajectory-Tracking  
Technical Paper Publication. DSCC2018-9200  
Ayse Tekes, Kevin Van Der Horn, Zach Marr, Chong Tian, Kennesaw State University, Marietta, GA, United States, Jingang Yi, Yongbin Gong, Rutgers University, Piscataway, NJ, United States, Dario Pompli, Rutgers University, Electrical and Computer Engineering, Piscataway, NJ, United States

1-21WA6 DYNAMIC SYSTEMS AND CONTROL EDUCATION  
Lower Level 3, Spring  10:00am - 12:00pm

Session Chair: Rebecca Reck, Kettering University, Flint, MI, United States  
Session Co-Chair: Tomasz Piatkowski, UTP University of Science and Technology, Bydgoszcz, Poland  
Session Organizer: Warren White, Kansas State University, Manhattan, KS, United States

Dynamics, vibrations and control lab equipment design  
Technical Paper Publication. DSCC2018-8913  
Ayse Tekes, Kevin Van Der Horn, Zach Marr, Chong Tian, Kennesaw State University, Marietta, GA, United States

Method of flexible fence geometry determination in the context of the small-sized objects sorting process  
Technical Paper Publication. DSCC2018-8928  
Tomasz Piatkowski, UTP University of Science and Technology, Bydgoszcz, Poland, Mirosław Wołski, UTP University of Science and Technology in Bydgoszcz, Bydgoszcz, Select State/Province, Poland
Simulation Study of a Spherical Inverted Pendulum on an Omnidirectional Cart with Holonomic Constraints
Technical Paper Publication. DSCC2018-9102
  SAYANI MAITY, Iowa State University, Ames, IA, United States,
  Greg R. Luecke, Iowa State Univ, Ames, IA, United States

Self-Balancing by Design in Hybrid Electrochemical Battery Packs
Technical Paper Publication. DSCC2018-9106
  Nur Adilah Aljunid, The Pennsylvania State University, State College, PA, United States, Michelle A. K. Denlinger, The Pennsylvania State University, Barto, PA, United States, Hosam K. Fathy, The Pennsylvania State University, University Park, PA, United States

Validating DC Motor Models on the Quanser Qube Servo.
Technical Paper Publication. DSCC2018-9158
  Rebecca Reck, Kettering University, Flint, MI, United States