Aykut C. Satici

Associate Professor of Mechanical and Biomedical Engineering

Personal Data

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Citizenship:	U.S. and Turkish dual citizen

Research Interests

My research interests are in robotics, nonlinear control, and machine learning. They encompass motion planning, convex optimization, optimal control, reinforcement learning, geometric mechanics and control, multi-agent cooperative and non-cooperative control, aerial vehicles, and control of robots in contact with the environment and/or humans. I am particularly interested in the difficult problems in robotics where general computational algorithms can find elegant solutions, and in problems where taking advantage of the natural dynamics of the robot yield dramatically improved performance.

Education

May 17, 2014	Doctor of Philosophy in Electrical Engineering
	The University of Texas at Dallas, Richardson, TX, USA
	Geometric Mechanics
	Dissertation title: "Cooperative Manipulation, Swarming and Connectivity Control of Multi-Agent Mechanical Systems"
	Advisor/Chair: Prof. Mark W. Spong
	Committee: Prof. Nicholas R. Gans, Prof. Viswanath Ramakrishna, Prof. Mathukumalli Vidyasagar
December 28, 2013	Master of Science in Mathematical Sciences
	The University of Texas at Dallas, Richardson, TX, USA
	Advisor: Prof. Viswanath Ramakrishna
June 2010	Master of Science in Mechatronics Engineering
	Sabanci University, Istanbul, Turkey
	Thesis title: "Modeling, Implementation and Control of a Forearm-Wrist Rehabilitation Device"
	Advisor: Prof. Volkan Patoglu
June 2008	Bachelor of Science in Mechatronics Engineering
	Sabanci University, Istanbul, Turkey

Professional Experience

August 2024 - Current	Boise State University, Associate Professor Department of Mechanical Engineering ☐ Data-driven control of robotic systems ☐ State-estimation and manipulation control of drones
March 2017 - August 2024	Boise State University, Assistant Professor Department of Mechanical Engineering ☐ Efficient marriage of nonlinear control design and machine learning ☐ Design of neural network architectures for control through contact ☐ Characterization of cellular structures through machine learning ☐ Optimal manipulator analysis and synthesis via convex optimization
April 2016 - March 2017	Massachusetts Institute of Technology, Postdoctoral Associate Member of Robot Locomotion Group Mentor: Russell L. Tedrake ☐ Hybrid control of underactuated mechanical systems ☐ Tractable analysis and control of soft robotics using implicit surface models
May 2015 - March 2016	The University of Naples, Federico II, Postdoctoral Researcher Member of Prisma Laboratory working on the RoDyMan Project Mentor: Bruno Siciliano ☐ Nonprehensile dynamic manipulation ☐ Energy-based control of robotic systems ☐ Tossing and catching of a pizza dough with a robotic manipulator ☐ Trajectory planning for a ping-pong playing robot ☐ Dynamics and control of the ballbot
July 2014 - March 2015	The MathWorks, Inc., Application Support Engineer ☐ Developing a Matlab-based robot simulator: ☐ Incorporation of robot size in collision detection ☐ Improving laser scanner simulation ☐ Simulated sensor and odometry noise
Aug 2010 - May 2014	The University of Texas at Dallas, Research Assistant Laboratory for Autonomous Robotics and Systems Advisor: Mark W. Spong ☐ Connectivity preserving formation control ☐ Geometric reduction theory applied to multi-agent systems ☐ Formation control with vision-based position measurements ☐ Nonholonomic cooperative manipulation of polygonal objects ☐ Path-following control via sensor-fused visual homography ☐ Linear optimal robust control theory applied to UAVs

Teaching Experience

Fall 2022	**ME 478/578**: Design and Analysis of Mechatronic Systems (Graduate) ◇ Basic circuit theory ◇ Introduction to microcontrollers and systems integration ◇ Communication between electronic systems ◇ Motor control with H-bridge
Spring 2022	**ME/ECE 360**: System Modeling and Control (Undergraduate) ◇ Laplace transforms and stability of differential equations ◇ Modeling: mass-spring-damper, rigid bodies, dc-motors ◇ Block diagrams and system Responses ◇ Tracking and disturbance rejection ◇ Pole placement, 2-DoF controllers, and internal stability
Fall 2017-2021	**ME 380**: Kinematics and Dynamics of Machines (Undergraduate) ◇ Kinematic and dynamic analysis of mechanisms ◇ Motion planning and synthesis of mechanisms ◇ Kinematic analysis of gears and cams
Spring 2018 Spring 2019 Spring 2021 Spring 2023	**ME 467–564 — ECE 464–564**: Robotics and Automated Systems (Graduate) ◇ Kinematic and dynamic analyses of robots ◇ Navigation and localization of mobile robots ◇ Motion planning and control of robots
Spring 2020 Fall 2023	**ME — ECE 597**: Optimization Theory and Practice (Graduate) ◇ Linear Programming and applications ◇ Unconstrained optimization ◇ Constrained optimization ◇ Convex optimization ◇ Neural network training
Sept 2015	A short course on Geometric Mechanics ◇ Five 2-hour lectures delivered at University of Naples, Federico II ◇ Coordinate-free Lagrangian and Hamiltonian Mechanics ◇ Symmetries and Conservation Laws ◇ Derivation of Geometric Control Laws
Aug 2013 - May 2014	Teaching Assistant at The University of Texas at Dallas **SYSM 6302** – Optimization Theory and Practice Instructor: Prof. James Primbs **MECH 6313** – Nonlinear Control Systems Instructor: Prof. Mark W. Spong
Sep 2008 - June 2010	Teaching Assistant at Sabanci University **ME 303** – Control System Design Instructor: Prof. Kemalettin Erbatur **EE 521** – Kinematics and Dynamics of Mechanisms Instructor: Prof. Volkan Patoğlu

Professional Service

Professional Organizations and Affiliations

MEMBER	*Institute of Electrical and Electronics Engineers*, 2012–current.
ORGANIZER	*American Control Conference*, May 31 – June 02, 2023

University

MEMBER	Tenure-track faculty search committee, 2022
MEMBER	MBE graduate and student affairs committee, 2018 – current, 2023 – present
MEMBER	Undergraduate research internship, 2017 – current
LED	Mechanics curriculum alignment team (CAT), 2022
MEMBER	Curriculum alignment teams: dynamics and control, mechatronics, computational/experimental, 2018 – 2022
CO-ADVISE	Autonomous ground vehicle: Bender with Dr. Steve Swanson
THESIS COMMITTEE	Served in the MS thesis committees of 3 students from other groups.

Articles, Journals

- Member of the program committee for American Control Conference, 2023.
- Associate editor for International Conference on Robotics and Automation 2019–current.

I have been a reviewer for the following journals:

- Automatica
- Transactions on Robotics
- Robotics and Automation Letters
- Transactions on Haptics
- Control System Letters
- Robotics: Science and Systems
- Trans. on Control of Network Systems
- Trans. on Control Systems Technology
- International Journal of Robotics Research
- Robotica
- Robotics and Autonomous Systems
- Intern. Federation of Automatic Control
- Nonlinear Dynamics
- MDPI: Systems and Control Engineering
- MDPI: Energies
- Trans. on Neural Systems and Rehab. Eng.

Grant Reviews

- NSF: National Robotics Initiative
- NSF: Foundational Research in Robotics
- NSF: Robust Intelligence

Conferences

I have been a reviewer for the following high-impact conferences.

- Intern. Conf.on Robotics and Automation
- American Control Conference
- Control and Decision Conference
- Intern. Conf. on Intel. Robots and Systems
- Intern. Design Eng. and Comp. and Information Eng. Conf.

Grant Proposals

Funded Proposals

National Science Foundation ACTIVE	NSF — STTR Phase I *Drone Localization around Power Lines via Measurements of the Electromagnetic Field*, Boise State PI, (with industry collaborator Pitch Aeronautics) October 01, 2024 – September 30, 2025, $275,000.
National Science Foundation ACTIVE	NSF — Foundational Research in Robotics *EAGER: Robust Data-Driven Robotic Manipulation via Bayesian Inference and Passivity-Based Control*, Boise State PI, (University of Kentucky PI: Hasan Poonawala) August 01, 2023 – July 31, 2023, $262,193.
US Army ACTIVE	SBIR A232-014-0383 *Power Line Perching Drone* PI, (co-PI: Zachary Adams of Pitch Aero), September 15, 2023 – September 14, 2024, $167,345.
National Inst. of Health ACTIVE	COBRE Extension P20GM109095 *Role of Cellular Mechanotransduction of Low Intensity Vibrations in Regulating Extracellular Matrix Synthesis*, co-PI ($163,534 my part), (PI: Gunes Uzer of Boise State), Oct. 01, 2023 – Sept. 31, 2024, $596,397.
National Science Foundation ACTIVE	Major Research Equipment *Track 1 Acquisition of a Digital Real-Time Simulator to Enhance Research and Student Research Training in Next-Generation Engineering and Computer Science* co-PI, (PI: Eklas Hossain of Boise State), August 21, 2023 – August 20, 2026, $294,451.
National Science Foundation ACTIVE	NSF — CASIS *ISS: 3D Bone Marrow Analog to Determine the Contribution of Mechanical Signals to Aging MSC Function in Microgravity*, co-PI, (PI: Gunes Uzer of Boise State University) November 01, 2020 – October 31, 2024, $465,051.
Dept. of Energy Off. of Electricity ACTIVE	SBIR C56-08b *Drone-Deployable Transmission Sensor Unit for Widespread Phasor, Power Quality, and Environmental Measurement to Increase Grid Throughput, Reliability, and Efficiency*, PI, (co-PI: Zachary Adams of Pitch Aero), September 01, 2023 – June 30, 2024, $200,000.
INBRE Biomed CLOSED	*Detection of Cellular Fibrous Networks via Machine Learning* PI, May 2022 – May 2024, $130,150.
US Navy CLOSED	SBIR N231-071-1180 *Compact Touch-Capable Drone for Non-Destructive and Visual Inspection in Elevated and Small Spaces*, PI, (co-PI: Zachary Adams of Pitch Aero), September 01, 2023 – May 31, 2024, $180,000.

Funded Proposals – Continued –

US Dept. of Agriculture CLOSED	*SBIR: Installation of Multiple Bird-Diverters on Power Lines via Drone,* PI, (co-PI: Zachary Adams of Pitch Aero), July 01, 2023 – March 01, 2024, $180,000.
Bastian Solutions CLOSED	*Human Presence Detector* PI, February 01, 2021 – May 31, 2021, $10,000.
Bastian Solutions CLOSED	*Automatic Calibration of Robotic Manipulators* PI, January 01, 2020 – May 31, 2020, $10,000.

Pending Proposals

National Science Foundation	Major Research Equipment *Driving Simulator for Research and Education* co-PI, (PI: Mandar Khanal of Boise State), May 01, 2024 – April 30, 2027, $650,000.

Proposals in Preparation

Declined Proposals

Department of Energy	*SBIR I: Drone Collection and Evaluation of Contaminated Nuclear,* *and Chemical Samples for Low-Risk Facility Contaminant* *Characterization* PI, (co-PI: Zachary Adams of Pitch Aero), Jun 01, 2023 – May 31, 2024, $200,000.
Department of Energy	*SBIR I: Drone-Deployed Active Thermography Sensor for Wind,* *Turbine Blade Subsurface Defect Detection* PI, (co-PI: Zachary Adams of Pitch Aero), Jun 01, 2023 – May 31, 2024, $200,000.
National Science Foundation	NSF: Biomechanics and Mechanobiology *Cellular Mechanotransduction of Low-Intensity Vibrations* co-PI, (PI: Gunes Uzer of Boise State University) Jun 01, 2023 – May 31, 2026, $499,999.
National Science Foundation	*SBIR I: Drone Infrastructure Installations,* PI, (co-PI: Zachary Adams of Pitch Aero), Mar 01, 2023 – Feb 29, 2024, $274,925.
National Science Foundation CAREER	Foundations of Robotics *CAREER: Data-Driven Design of Passivity-Based Contact-Aware* *Gaussian Process Controllers*, PI, September 01, 2023 – August 31, 2028, $552,088.

Declined Proposals – Continued

National Science Foundation	Foundations of Robotics *Collaborative: Provably Stable Control Design via Bayesian Inference for Robust Manipulation using Passivity and Automated Verification*, PI, (co-PI: Hasan Poonalawa of U. of Kentucy), January 01, 2023 – December 31, 2025, $288,882.
National Inst. of Health	R21: Exploratory/Developmental Research Grant Program *Cellular Mechanotransduction of Low-Intensity Vibrations*, co-PI, (PI: Dr. Gunes Uzer of Boise State) October 10, 2022 – September 30, 2023, $385,930
National Science Foundation	Foundations of Robotics *Humanoid walking in real-world environments: learning model uncertainty for robust model-based control*, PI, (co-PI: Pranav Bhounsule) June 01, 2022 – May 31, 2025, $255,590
National Science Foundation CAREER	Foundational Research in Robotics *Data-Driven Energy-Shaping Control Design for Robotic Systems*, PI, September 01, 2022 – May 31, 2027, $509,061
Amazon Research Awards CAREER	Artifical Intelligence for Robotics *Data-Driven Energy-Shaping Control Design for Robotic Systems*, PI, April 01, 2022 – March 31, 2023, $80,000
NIH Center of Biomed. Exc.	*Detection of Extracellular and Cellular Fibrous Networks via Machine Learning*, PI, (*resubmitted*) March 2021 – March 2023, $100,000
National Inst. of Health	R01AG059923-02 NOT-OD-221-094: ML Supplement *Role of LINK-mediated Mechanosignaling in MSC Aging*, co-PI, (PI: Dr. Gunes Uzer of Boise State) October 10, 2021 – September 30, 2022, $280,901
National Science Foundation	Foundational Research in Robotics *One stride at a time: fast online optimal control of humanoids on complex terrain*, PI, (co-PI: Pranav A. Bhounsule of U. of Chicago) June 01, 2021 – May 31, 2024, $254,565
National Science Foundation CAREER	Dynamics, Control and Systems Diagnostics *Robust Control Design through Contact via Neural Ordinary and Stochastic Differential Equations*, PI, September 01, 2021 – August 31, 2026, $505,243
National Science Foundation	IIS: Information and Intelligence Systems *Optimal Manipulator and Controller Design for Decentralized Robotic Actuation*, PI, September 01, 2019 – August 31, 2022, $263,992
US Army	AP17-005: Great Vehicle Systems (GVS) *Robotic Tool Kit (RTK) Logistics and Automation*, co-PI, (PI: Steve Swanson of Boise State), October 01, 2019 – December 01, 2020, $100,000

Declined Proposals – Continued

National Science Foundation   EFMA: Emerging Frontiers in Research and Innovation
Octoboteel: Swim Like an Eel, Manipulate Like an Octopus
PI, September 01, 2018 – August 31, 2022, $1,999,999

National Science Foundation   CMMI – S&CC: Smart and Connected Communities
Efficacy, Adoption, and Resilience of Decentralized and Community Based Demand Response Programs, co-PI, (PI: John Gardner of BSU)
October 01, 2018 – September 30, 2022, $1,949,245

National Aeronautics Space Admin.   80HQTR20NOA01-20ECF B1:Early Career Faculty (ECF)
Multi-Robot Coordination for Dynamic Manipulation and Extreme Terrain Traversal, PI, October 10, 2020 – September 31, 2023, $544,052

National Inst. of Health   R15: NIH Research Enhancement Award
Robotics inspired Knee BRACE: Biomechanical model that restrains and alleviates cartilage damage, co-PI, (PI: Dario Villarreal of SMU)
October 10, 2020 – September 30, 2023, $429,682

US Department of Agriculture   USDA-NIFE-AFRI-006739: Agriculture and Food Research Initiative
Sustainable Food Safety Systems for Biofilm Mitigation in Food Processing, co-PI, (PI: Jim Browning of Boise State), August 01, 2020 – July 31, 2025, $9,997,940

Office of Naval Research   *Control of Autonomous Landing of Unmanned Aerial Vehicles*, co-PI, (PI: Inanc Senocak of U. of Pittsburgh)
March 01, 2018 – March 01, 2021, $700,000

Office of Naval Research   *High-Fidelity Flow Analysis and Control of Undulatory Fish Locomotion*, PI, January 01, 2018 – January 01, 2021, $650,000

CURRENT RESEARCH STUDENTS

Name	Degree	Discipline	Role	Expected Graduation
Chris Dagher	PHD	Computing	Advisor	Spring 2027
Farnaz Darghiasi	PHD	Biomedical	Co-Advisor	Spring 2027
Chandika Silva	MS	Mechanical Eng.	Advisor	Spring 2025
Omor Khan	MS	Mechanical Eng.	Advisor	Fall 2023
Alex Peterson	MS	Mechanical Eng.	Advisor	Fall 2024
Yafa Benavidez	UG/FT MS	Mechanical Eng.	Advisor	Spring 2025
Nina Nikitina	N/A	Computer Science	Mentor	Graduated
Oliver Macdonald	UG	Mechanical Eng.	Advisor	Spring 2024

Alumni

Name	Degree	Discipline	Now
Nardos Ashenafi	PHD	Electrical Eng.	On the job market
Wankun Sirichotiyakul	PHD	Electrical Eng.	Robotics engineer at Bastian Solutions
Wankun Sirichotiyakul	MS	Mechanical Eng.	PHD candidate at Boise State
Nardos Ashenafi	UG	Mechanical Eng.	PHD candidate at Boise State
Julianna Buzzard	UG	Mechanical Eng.	Engineer at Pitch Aeronautics
Gavin Hamilton	UG	Mechanical Eng.	Engineer at Idaho Power
Dylan Rolleigh	UG	Mechanical Eng.	Robotics engineer at Bastian Solutions
Ryan Montrose	MS	Mechanical Eng.	Research engineer at Lam Research
Maddie Cudworth	UG	Mechanical Eng.	Engineer at Boeing
Sabrina Mooers	UG	Mechanical Eng.	Unknown
Evan Daniels	UG	Mechanical Eng.	Senior
Jessica Carlson	UG	Mechanical Eng.	Graduate student
Jonathan Mott	UG	Mechanical Eng.	Unknown

LIST OF PUBLICATIONS

Underlined fonts indicate a student author while **bolded** fonts indicate the corresponding author.

Book Chapters and Magazines

1. Aykut C. Satici, Fabio Ruggiero, et. al. "*Robotic Dynamic Manipulation*", Springer Nature Switzerland AG, 2022

2. Volkan Patoglu and Aykut Cihan Satici, "*Optimal Design of Haptic Interfaces*", Advances in Haptics, IN-TECH, 2010. *(This book chapter has been downloaded over 5000 times from unique IP addresses.)*

3. F. Ruggiero, Aykut C. Satici, et. al. "*Perception of Deformable Objects and Nonprehensile Manipulation Control*", ICINCO Springer, 2019

4. F. Ruggiero, **Aykut C. Satici**, et. al. "*Nonprehensile manipulation of deformable objects: Achievements and Perspectives from the RoDyMan Project*", vol. 25, nu. 3, pp.83,92 IEEE Robotics & Automation Magazine, 2018

Upcoming Submissions

1. **Aykut C. Satici**, <u>Alex Peterson</u>, John Chiasson, and Zachary Adams, "*Estimation and Control using Electric and Magnetic Fields around Transmission Lines*", Transactions on Control System Technology, 2024 (to be submitted by the end of Fall semester).

Submitted Manuscripts

1. <u>Nardos A. Ashenafi</u>, **Aykut C. Satici**, "*Control of Hybrid Dynamical Systems via Deep-net Mixture-of-Experts*", International Journal of Artificial Intelligence and Robotics Research (IJAIRR), (submitted in June 2023).

2. <u>Nardos A. Ashenafi</u>, **Aykut C. Satici**, "*Data-Driven Passivity-Based Control of Rimless Wheel with Torso on Uneven Terrain*", IEEE Transactions on Control Systems Technology (submitted in June 2023).

3. <u>Nardos A. Ashenafi</u>, <u>Wankun Sirichotiyakul</u>, **Aykut C. Satici**, "*Robust Data-Driven Design of Passivity-Based Controllers*", IEEE Transactions on Automatic Control, 2023 (*revised and resubmitted*).

4. <u>Omor Khan</u>, Gunes Uzer, Aykut C. Satici, et. al. "*Building a Micrgravity-Compatible Vibrational Bioreactor: Development and Characterization of a Low-Intensity Vibrational System*", Summer Biomechanics, Bioengineering and Biotransport Conference (SB3C), (submitted), June 2023.

Refereed Journal Articles

1. <u>Nina Nikitina</u>, Nurbanu Bursa, et. al., **Aykut C. Satici**, and Gunes Uzer, "*Data driven and cell specific determination of nuclei-associated actin structure*", Small Structures, Wiley, 2024 (accepted, to appear).

2. **Aykut C. Satici**, John Chiasson, Alex Peterson, and Zachary Adams "*Controlling UAVs by Sensing the Electric and Magnetic Field Around Power Lines*", IEEE Control Systems Letters 7 (2023): 3477-3482.

3. <u>Nardos A. Ashenafi</u>, <u>Wankun Sirichotiyakul</u>, **Aykut C. Satici**, "*Robust Passivity-Based Control of Underactuated Systems via Neural Approximators and Bayesian Inference*", IEEE Control Systems Letters, Vol. 6, 2022

4. <u>Wankun Sirichotiyakul</u>, **Aykut C. Satici**, "*Data-Driven Passivity-Based Control of Underactuated Mechanical Systems via Interconnection and Damping Assignment*", International Journal of Control, 2022.

5. <u>Ryan Montrose</u>, **Aykut C. Satici**, and John Gardner, "*Centralized and Decentralized Optimal Control of Variable Speed Heat Pumps*", Energies, MDPI, 2021

6. <u>Wankun Sirichotiyakul</u>, Volkan Patoglu, **Aykut C. Satici**, "*Efficient Singularity-Free Workspace Approximations Using Sum-of-Squares Programming*", Journal of Mechanisms and Robotics, 2020.

7. <u>D. Serra</u>, F. Ruggierro, **A. C. Satici**, et. al., "*Time-Optimal Paths for a Robotic Batting Task*", Informatics in Control, Automation and Robotics, Springer, 2018.

8. <u>L. Buonocore</u>, <u>J. Cacace</u>, A. Donaire, **A. C. Satici**, et. al., "*Nonprehensile manipulation of defomable objects*", Robotics and Automation Magazine (RAM), 2018.

9. **Aykut Cihan Satici**, Alejandro Donaire, Bruno Siciliano, ,"*Intrinsic Dynamics and Total Energy Shaping Control of the Ballbot System*", International Journal of Control, 2016.

10. **Aykut C Satici**, Mark W. Spong, "*Global Swarming With Connectivity Via Lagrange-Poincaré Equations,*", Automatica, Volume 71, 2016.

11. <u>Ahmetcan Erdogan</u>, <u>Besir Celebi</u>, <u>Aykut C Satici</u>, and **Volkan Patoglu**, "*A Reconfigurable Ankle Exoskeleton with Series-Elastic Actuation*", Springer Autonomous Robots, Assistive and Rehabilitation Robotics, 2015.

12. **Hasan Alihusain Poonawala**, <u>Aykut C Satici</u>, Hazen Eckert, and Mark W. Spong, "*Collision-Free Formation Control with Decentralized Connectivity Preservation for Nonholonomic-Wheeled Mobile Robots,*", IEEE Transactions on Control of Network Systems, vol. 2, no. 2, pp.122-130, June, 2015.

13. **Aykut Cihan Satici**, <u>Hasan Poonawala</u>, and Mark W. Spong "*Robust Optimal Control of Quadrotor UAVs,*", Access, IEEE, vol. 1, no., pp.79-93, 2013.

14. <u>David Tick</u>, <u>Aykut Cihan Satici</u>, <u>Jinglin Shen</u>, and **Nicholas Gans**, "*Tracking Control of Mobile Robots Localized via Chained Fusion of Discrete and Continuous Epipolar Geometry, IMU and Odometry,*", IEEE Transactions on Cybernetics, vol.43, no.4, pp.1237-1250, Aug. 2013.

15. <u>Aykut Cihan Satici</u>, <u>Ahmetcan Erdogan</u>, and **Volkan Patoglu**, "*A Multi-Lateral Rehabilitation System,*", Turkish Journal of Electrical Engineering and Computer Sciences, vol. 19(5), 2011. *(Selected for journal publication by conference PC members.)*

Refereed Conference Proceedings

1. **Aykut C. Satici**, <u>Alex Peterson</u>, John Chiasson, and Zachary Adams, "*Controlling UAVs by Sensing the Electric and Magnetic Field Around Power Lines*", American Control Conference (ACC), June 2024 (Accepted, to appear).

2. <u>Nardos A. Ashenafi</u>, <u>Wankun Sirichotiyakul</u>, and **Aykut C. Satici**, "*Robust Data-Driven Design of Passivity-Based Controllers*", Conference on Decision and Control (CDC), December 2022.

3. <u>Wankun Sirichotiyakul</u>, <u>Nardos A. Ashenafi</u>, **Aykut C. Satici**, "*Robust Data-Driven Passivity-Based Control of Underactuated Systems via Neural Approximators and Bayesian Inference*", American Control Conference (ACC), June 2022.

4. <u>Nardos A. Ashenafi</u> and **Aykut C. Satici**, "*Nonholonomic Cooperative Manipulation in the Plane using Linear Complementarity Formulation*", Conference on Control Technology and Applications (CCTA), 2021.

5. <u>Wankun Sirichotiyakul</u> and **Aykut C. Satici**, "Combining Energy-Shaping Control of Dynamical Systems with Data-Driven Approaches", Conference on Control Technology and Applications (CCTA), 2021.

6. <u>E. Hernandez-Hinojosa</u>, Aykut C. Satici, and **Pranav A. Bhounsule**, "*Optimal Control of a 5-Link Biped Using Quadratic Polynomial Model of Two-Point Boundary Value Problem*", ASME IDETC-CIE, 2021

7. <u>Wankun Sirichotiyakul</u>, **Aykut C. Satici** "*Data-driven Design of Energy-Shaping Controllers for Swing-Up Control of Underactuated Robots*", International Symposium on Experimental Robotics (ISER), 2020.

8. <u>Wankun Sirichotiyakul</u>, <u>Sebastian Sanchez</u>, Pranav A. Bhounsule, and **Aykut C. Satici** "*Energetically Optimal Discrete and Continuous Stabilization of Rimless Wheel with Torso*", ASME IDETC-CIE, 2019.

9. <u>Wankun Sirichotiyakul</u>, Volkan Patoglu, **Aykut Cihan Satici**, "*Convex Multi-Criteria Design Optimization of Robotic Manipulators via Sum-of-Squares Programming*", International Conference on Robotic Computing (IRC), February 2019.

10. <u>Diana Serra</u>, Aykut Cihan Satici, Fabio Ruggiero, Vincenzo Lippiello and **Bruno Siciliano**, "*An Optimal Trajectory Planner for Robotic Batting Task: The Table Tennis Example*", 13th International Conference on Informatics in Control, Automation and Robotics, (ICINCO), 2016.

11. **Aykut Cihan Satici**, Fabio Ruggiero, Vincenzo Lippiello and Bruno Siciliano, "*Intrinsic Euler-Lagrange Dynamics and Control Analysis of the Ballbot*", IEEE American Control Conference, (ACC), 2016.

12. **Aykut Cihan Satici**, Fabio Ruggiero, Vincenzo Lippiello and Bruno Siciliano, "*A Coordinate-Free Framework for Robotic Pizza Tossing and Catching*", IEEE Conference on Robotics and Automation, (ICRA) 2016.

13. **Aykut Cihan Satici**, and Mark W. Spong, "*Global Swarming While Preserving Connectivity via Lagrange-Poincaré Equations,*", World Congress of the International Federation of Automatic Control, (IFAC) 2014, 24-29 Aug 2014.

14. **Aykut Cihan Satici**, Hasan Poonawala, Hazen Eckert, and Mark W. Spong, "*Connectivity preserving formation control with collision avoidance for nonholonomic wheeled mobile robots,*", IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2013, vol., no., pp.5080,5086, 3-7 Nov. 2013.

15. **Hasan Poonawala**, Aykut Cihan Satici, and Mark W. Spong, "*Leader-follower formation control of nonholonomic wheeled mobile robots using only position measurements,*" 9th Asian Control Conference (ASCC), 2013, vol., no., pp.1,6, 23-26 June 2013.

16. **Aykut Cihan Satici**, and Mark W. Spong, "*Connectivity control on Lie groups,*" 9th Asian Control Conference (ASCC), 2013, vol., no., pp.1,6, 23-26 June 2013.

17. Aykut Cihan Satici, David Tick, Jinglin Shen, **Nicholas Gans**, "*Path-following control for mobile robots localized via sensor-fused visual homography,*" IEEE American Control Conference, (ACC), 2013, vol., no., pp.6287,6293, 17-19 June 2013.

18. **Aykut Cihan Satici**, and Mark W. Spong, "*Nonholonomic cooperative manipulation of polygonal objects in the plane,*" IEEE 51st Annual Conference on Decision and Control (CDC), 2012, vol., no., pp.2439,2446, 10-13 Dec. 2012.

19. Hasan Poonawala, Aykut Cihan Satici, **Nicholas Gans**, and Mark W. Spong, "*Formation control of wheeled robots with vision-based position measurement,*" American Control Conference (ACC), 2012, vol., no., pp.3173,3178, 27-29 June 2012.

20. Ahmetcan Erdogan, Aykut Cihan Satici, and **Volkan Patoglu**, "*Passive velocity field control of a forearm-wrist rehabilitation robot,*" IEEE International Conference on Rehabilitation Robotics (ICORR), 2011, vol., no., pp.1,8, June 29 2011-July 1 2011.

21. M. Alper Ergin, Aykut Cihan Satici, and **Volkan Patoglu**, "*Design optimization, impedance control and characterization of a Modified Delta Robot,*" 2011 IEEE International Conference on Mechatronics (ICM), , vol., no., pp.737,742, 13-15 April 2011.

22. Aykut Cihan Satici, Ahmetcan Erdogan, and **Volkan Patoglu**, "*Design of a reconfigurable ankle rehabilitation robot and its use for the estimation of the ankle impedance,*" IEEE International Conference on Rehabilitation Robotics, 2009. ICORR 2009., vol., no., pp.257,264, 23-26 June 2009.

23. Ahmetcan Erdogan, Aykut Cihan Satici, and **Volkan Patoglu**, "*Design of a reconfigurable force feedback ankle exoskeleton for physical therapy,*" ASME/IFToMM International Conference on Reconfigurable Mechanisms and Robots, 2009. ReMAR 2009., vol., no., pp.400,408, 22-24 June 2009.