Ariel Anders PhD

Massachusetts Institute of Technology
Department of Electrical Engineering and Computer Science
Address: 32 Vassar Street 32-G418 Cambridge, MA 02139
anders.ariel@gmail.com · https://arii.github.io/

Education

Massachusetts Institute of Technology · Cambridge, MA
Ph.D., Electrical Engineering and Computer Science · Fall 2014 - Winter 2019
S.M., Electrical Engineering and Computer Science· Fall 2012 - Spring 2014

Advisors: Prof. Leslie Kaelbling and Prof. Tomás Lozano Pérez.

Doctorate Thesis: "Reliably arranging objects: a conformant planning approach to robot manipulation"

Masters Thesis: "Learning a Strategy for Whole Arm Grasping"

Completed minor: Mechanical Engineering/Aeronautics and Astronautics (courses in controls and autonomous vehicles)

GPA: 4.9/5.0

University of California, Santa Cruz · Santa Cruz, CA
B. S., Computer Engineering· Fall 2008 - Spring 2012

University of California Regent Scholar

University Honors: *Summa Cum Laude*, Department Honors: Highest Honors in the major

GPA: 3.96/4.00

Senior Design Capstone Project:
Team project to improve the performance of arithmetic functions for Oracle numbers within the Oracle Database; this software development project was completely done in C on x86 and ARM processors using code profilers to find performance bottle necks and applying vectorized hardware instructions (SSE) and different number representations to achieve speedup.

Publications

[1] Ariel S. Anders, Leslie P. Kaelbling, and Tomas Lozano-Perez. Reliably arranging objects in uncertain domains. In *IEEE Conference on Robotics and Automation (ICRA)*, 2018.

[2] Ariel Anders. Robot juggling. In *EAAI-18: The 8th Symposium on Educational Advances in Artificial Intelligence*, 2018.

[3] Ariel Anders, Leslie Kaelbling, and Tomas Lozano-Perez. Planning robust strategies for constructing multi-object arrangements. Technical report, CSAIL MIT, 2017.

[4] Daniel J. Preston, Ariel Anders, Banafsheh Barabadi, Evelyn Tio, Yangying Zhu, DingRan Annie Dai, and Evelyn N. Wang. Electrowetting-on-dielectric actuation of a spatial and angular manipulation mems stage. In *The 30th IEEE International Conference on Micro Electro Mechanical Systems (MEMS 2017)*, 2017.

[5] Sertac Karaman, Ariel Anders, Michael Boulet, Jane Connor, Kenneth Gregson, Winter J Guerra, Owen Guldner, Mubarik Mohamoud, Brian Plancher, Robert Shin, and John Vivilecchia. Project-based, collaborative, algorithmic robotics for high school students: Programming self-driving race cars at MIT. In *2017 IEEE Integrated STEM Education Conference (ISEC) (ISEC'17)*, Princeton, USA, March 2017.

[6] Christopher Amato, George Konidaris, Ariel Anders, Gabriel Cruz, Jonathan P How, and Leslie P Kaelbling. Policy search for multi-robot coordination under uncertainty. *The International Journal of Robotics Research*, 35(14):1760–1778, 2017.

[7] Daniel J. Preston, Ariel Anders, Banafsheh Barabadi, Evelyn Tio, Yangying Zhu, DingRan Annie Dai, and Evelyn N. Wang. Electrowetting-on-dielectric actuation of a vertical translation and angular manipulation stage. *Applied Physics Letters*, 109(24):244102, 2016.

[8] Ariel Anders and Sertac Karaman. Visual servoing. In *EAAI-17: The 7th Symposium on Educational Advances in Artificial Intelligence*, 2017.

[9] C. Amato, G.D. Konidaris, A. Anders, G. Cruz, J.P. How, and L.P. Kaelbling. Policy search for multi-robot coordination under uncertainty. In *Robotics: Science and Systems XI (RSS)*, 2015.

[10] Ariel S. Anders and Jacob Rosen. Dynamic registration for dental robotics. In *National Society of Black Engineers Technical Proceedings*, volume 38, 2012.

Experience

Lecturer of ENGR 2340: Dynamics Olin College of Engineering · Fall 2018

Required mechanical engineering course for sophomore and junior year students. Course topics covered equations of motion for 3D rigid bodies to concepts involving equilibrium, linearization, and stability. Feedback control and dynamic response in time and frequency domains is introduced.

Beaverworks Summer Institute Technical Instructor BeaverWorks · Summer 2017

The MIT Beaver Works Summer Institute is a rigorous, world-class STEM program for talented rising high school seniors. As a technical instructor I directed lab sessions and provided lectures, some of which are available on youtube: planning lecture and visual servoing.

Undergraduate Researcher, Bionics Lab UCSC · Santa Cruz, CA · Summer 2010 - 2012

Advisor: Jacob Rosen (Now at UCLA). Research focus: CAD/CAM applications in dentistry, autonomous control with mechanical systems, and UI development for robotic programs. Developed a workflow to execute dental crowning and implant placement procedures on static dental models that I verified experimentally. Worked on a system to implement dynamic dental procedures.

Additional Positions

Teaching Assistant, MIT Aero-Astro/EECS Robotics Course 16.405/6.141 · Spring 2017 & 2016.
Software Engineering Intern, Intel · Summer 2014.
Lead Associate Instructor, Beaverworks Summer Institute · Summer 2016.
Teaching Assistant, MIT Intro to EECS 6.01 · Spring 2015.
Teaching Assistant, UCSC Precalculus (Math 3) · Spring 2010 & 2011, Fall 2011, Winter 2012.
Teaching Assistant, UCSC College Algebra (Math 2/S) · Fall 2009 & 2010, Winter 2010 & 2011.

Research Fellowships

GEM Ph.D. Engineering Fellowship Sponsored by Intel, Summer 2014
Edwin S. Webster Graduate Fellowship in Electrical Engineering, Spring 2013
Lemelson Minority Graduate Fellowship, Fall 2012
Minority Access to Research Careers, Summer 2010- Spring 2012
Summer Undergraduate Research Fellowship in Information Technology, Summer 2010.

Honors and Awards

Grant Recipient

2017 Earth Day Mini Grant
2017 MIT Green Labs Innovation Award
2016 MIT EHS Green Labs Award
MindHandHeart Innovation Fund Grant Recipient, Fall 2015
University Center of Exemplary Mentoring at MIT Scholar, Innaugural class of 2015.

Academic Honors and Scholarships

MIT EECS Frederick C. Hennie III Teaching Award, Spring 2017
MIT Graduate Women of Excellence, class of 2017 Honorees
University of California Regent Scholarship, Fall 2010-Spring 2012
Google Travel Scholarship for NSBE, Winter 2012
Mantey Undergraduate Leadership Award, Spring 2011
ARGV Scholarship, Spring 2010
Science Learning Community GPA Award, Spring 2009
Travel Scholarship Recipient for SACNAS, Fall 2008