

IOANNIS A. RAPTIS

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A. EDUCATION AND ACADEMIC QUALIFICATIONS

A.1 EDUCATION

University of South Florida, Tampa, Florida, USA

Ph.D. Electrical Engineering

Fall 2006 to Fall 2009, Degree May 2010

Dissertation title: Linear and nonlinear control of unmanned rotorcraft

Advisers: Professors Kimon Valavanis and Wilfrido Moreno.

Areas of study: Nonlinear control, attitude control, helicopter control, and system identification

The Ohio State University, Columbus, Ohio, USA

M.S. Electrical and Computer Engineering

Fall 2004 to Spring 2006, Degree August 2006

Advisers: Professors Eric R. Westervelt and Stephen Yurkovich

Areas of study: Nonlinear control, bipedal locomotion, robotics, hybrid systems

Aristotle University of Thessaloniki, Thessaloniki, Greece

Dipl. Ing. Electrical and Computer Engineering (5 year degree)

Fall 1998 to Fall 2003, Degree November 2003

Area of study: Electronics and computer engineering

A.2 ACADEMIC EXPERIENCE

Assistant Professor

North Carolina A&T State University, Greensboro, North Carolina USA

Department of Electrical and Computer Engineering

Autonomous Robotic Systems Laboratory

Fall 2019 to present

Assistant Professor

University of Massachusetts Lowell, Lowell, Massachusetts USA

Department of Mechanical Engineering

Autonomous Robotic Systems Laboratory

Fall 2012 to August 2019

Postdoctoral Research Fellow

Georgia Institute of Technology, Atlanta, Georgia USA

Department of Aerospace Engineering

Aerospace Systems Design Laboratory

June 2011 to August 2012

Department of Electrical and Computer Engineering

Intelligent Control Systems Laboratory

February 2010 to August 2012

Research and Teaching Assistant

University of South Florida, Tampa, Florida USA

Departments of Electrical Engineering, and Computer Science and Engineering

Unmanned Systems Laboratory

August 2006 to December 2009

B. RESEARCH

B1. GRANTS & CONTRACTS

Table 1: Summary of Grants Received by I.A. Raptis (2012 - Present).

Funding Category	Amount
Total External Funding	\$876,274
as PI	\$176,259
as co-PI	\$700,015
Total Internal Funding	\$7,000
as PI	\$7,000
Total Grants of All Funding Types	\$883,274

Table 2: Funding Details for All Grants & Contracts.

Award Title	Funding Agency	Role & Credit	Period	Award Amount
Distributed Fault Diagnosis for Large-Scale Nonlinear Stochastic Systems	NSF	Sole PI, 100%	6/2017-5/2020	\$176,259
Distributed Change Diagnosis for Networked Robotic Systems	AFRL	Sole PI, 100%	6/2016-8/2016	\$12,000**
Robotic Radiation Detection	CANBERRA Industries, Inc.	co-PI, 50%	12/2014-11/2015	\$15,000
Robotic Radiation Detectors	UML	PI, 50%	6/2015-6/2017	\$7,000
Quantitative Sensing of Bridges, Railways, and Tunnels with Autonomous Unmanned Aerial Vehicles	DoT	co-PI, 10%	9/2014-9/2016	\$700,000*

* Total amount of the project, including cost-share, is \$1,417,808.

** This award is a summer stipend as part of a Summer Faculty Fellowship, and it is not included in the total received grants.

PENDING PROPOSALS

Secure and Safe Assured Autonomy; NASA ULI; Role: Co-PI for NC A&T; NC A&T Funding Amount: **\$1,999,667.04**; Submitted: 1/29/2019.

MRI: Acquisition of a Testbed of Connected Autonomous MicroTransit Vehicles; NSF; Role: Co-PI for NC A&T; NC A&T Funding Amount: **\$550,000.00**; Submitted: 1/21/2019.

Collaborative Research: IGE: Graduate Education in Cyber-Physical Systems Engineering; NSF; Role: Lead PI for NC A&T; NC A&T Funding Amount: **\$69,992.64**; Submitted: 9/27/2019.

B.2 ACADEMIC PUBLICATIONS

B.2.A BOOK

- [B1] I.A. Raptis and K.P. Valavanis. “[Linear and nonlinear control of small-scale unmanned helicopters.](#)” Springer, 2011.

B.2.B BOOK CHAPTER

- [BC1] I.A. Raptis and K.P. Valavanis. “[Airplane basic equations of motion and open-loop dynamics.](#)” *Advances in Unmanned Aerial Vehicles: State of the art and the road to autonomy*, edited by K.P. Valavanis, chapter 3, pp. 49-72, Springer, 2007.

B.2.C PEER-REVIEWED JOURNAL PUBLICATIONS

- [J1] I.A. Raptis and E. Noursadeghi. “A particle-filtering based approach for distributed fault diagnosis of nonlinear systems with remote sensors.” *ISA Transactions*. **Submitted: January 2020; Status: under review.**
- [J2] I.A. Raptis, C. Hansen, and M.A. Sinclair. “Design, Modeling, and Constraint Compliant Control of an Autonomous Morphing Surface for Omnidirectional Object Conveyance.” *Journal of Mechanisms and Robotics*. **Submitted: January 2020; Status: under review**
- [J3] M.A. Guney and I.A. Raptis. “Scheduling-based optimization for motion coordination of autonomous vehicles at multi-lane intersections.” *Journal of Robotics*. **Submitted: December 2019; Status: accepted.**
- [J4] M.A. Guney and I.A. Raptis. “Dynamic prioritized motion coordination of multi-AGV systems.” *Robotics and Autonomous Systems*. **Submitted: July 2018; Status: revisions.**
- [J5] E. Noursadeghi and I.A. Raptis. “[Reduced-order distributed fault diagnosis for large-scale nonlinear stochastic systems.](#)” *ASME Journal of Dynamic Systems, Measurement, and Control*. 140(5):051009, December 2017.
- [J6] C. Sconyers, Y. Lee, K. Kim, S. Oh, D. Mavris, N. Oza, R. Mah, R. Martin, I.A. Raptis, G.J. Vachtsevanos. “[Diagnosis of fault modes masked by control loops with an application to autonomous hovercraft systems.](#)” *International Journal of Prognostics and Health Management*, 4(1), 2013.
- [J7] I.A. Raptis, K.P. Valavanis, and G.J. Vachtsevanos. “Linear tracking control for small-scale unmanned helicopters.” *IEEE Transactions on Control Systems Technology*, 20(4), pp. 995-1010, July 2012.
- [J8] I.A. Raptis, K.P. Valavanis, and W.A. Moreno. “[A novel backstepping controller design for miniature rotorcraft using the rotation matrix.](#)” *IEEE Transactions on Control Systems Technology*, 19(2), pp. 465-473, March 2011.
- [J9] I.A. Raptis, K.P. Valavanis, A. Kandel and W.A. Moreno. “[System identification for a miniature helicopter at hover using fuzzy models.](#)” *Journal of Intelligent and Robotic Systems*, 56(3), pp. 345-362, October 2009.
- [J10] I.A. Raptis, K.P. Valavanis, and W.A. Moreno. “[System identification and discrete nonlinear control of miniature helicopters using backstepping.](#)” *Journal of Intelligent and Robotic Systems*, 55(2-3), pp. 223-243, July 2009.
- [J11] S. Srinivasan, I.A. Raptis, and E.R. Westervelt. “[A low-dimensional sagittal plane model for normal human walking.](#)” *ASME Journal of Biomechanical Engineering*, 130(5), pp. 430-441, October 2008.

B.2.D PEER-REVIEWED CONFERENCE PROCEEDINGS

- [C1] I.A. Raptis and C. Taylor. “[Observability of multi-agent network sensing systems.](#)” Submitted to the *Proceedings of the ASME Dynamic Systems and Control Conference (DSCC)*. pp. V002T15A004, Park City, Utah, October 2019.
- [C2] M.A. Guney and I.A. Raptis. “[Scheduling-driven motion coordination of autonomous vehicles at a multi-lane traffic intersection.](#)” In *Proceedings of the IEEE American Control Conference (ACC)*. pp. 4038-4043, Milwaukee, Wisconsin, June 2018.
- [C3] E. Noursadeghi and I.A. Raptis. “[A particle filtering-based approach for distributed fault diagnosis and estimation of multi-robot systems.](#)” In *Proceedings of the ASME Dynamic Systems and Control Conference (DSCC)*, pp. V002T23A006-V002T23A006, Minneapolis, Minnesota, October 2016.
- [C4] E. Noursadeghi and I.A. Raptis. “[Full-order distributed fault diagnosis for large-scale nonlinear stochastic systems.](#)” In *Proceedings of the ASME Dynamics Systems and Control Conference (DSCC)*, pp. V002T19A004-V002T19A004, Columbus, Ohio, October 2015.
- [C5] M.A. Guney and I.A. Raptis. “[Task-allocation and control of a ground robots collective for warehouse automation.](#)” In *Proceedings of the ASME Dynamics Systems and Control Conference (DSCC)*, pp. V002T30A006-V002T30A006, Columbus, Ohio, October 2015.
- [C6] M.A. Guney and I.A. Raptis. “[A robotic experimental platform for testing and validating warehouse automation algorithms.](#)” In *Proceedings of the IEEE International Conference for Practical Robot Applications (TePRA)*, pp. 1-6, Boston, MA, May 2015.
- [C7] D. Fyler, B. Sullivan and I.A. Raptis. “[Distributed object manipulation using a mobile multi-agent system.](#)” In *Proceedings of the IEEE International Conference for Practical Robot Applications (TePRA)*, pp. 1-6, Boston, MA, May 2015.
- [C8] M. Sinclair and I.A. Raptis. “[Dynamic end target part conveyance using an autonomous morphing surface.](#)” In *Proceedings of the IEEE International Conference for Practical Robot Applications (TePRA)*, pp. 1-6, Woburn, MA, May 2015.
- [C9] Z. Liu, Z. Li, B. Liu, X. Fu, I.A. Raptis and K. Ren. “[Rise of mini-drones: applications and issues.](#)” In *Proceedings of the 2015 ACM Workshop on Privacy-Aware Mobile Computing*, pp. 7-12, Hangzhou, China, June 2015.
- [C10] E. Noursadeghi and I.A. Raptis. “[Distributed fault detection of nonlinear large-scale dynamic systems.](#)” In *Proceedings of the ACM/IEEE International Conference on Cyber-Physical Systems (ICCPS)*, pp. 51-59, Seattle, WA, April 2015.
- [C11] M. Sinclair and I.A. Raptis. “[Object conveyance control algorithms with spatially changeable end target location using large-scale actuator networks.](#)” In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, pp. 6052-6057, Seattle, WA, May 2015.
- [C12] M. Sinclair and I.A. Raptis. “[Distributed manipulation using cyber-physical systems.](#)” In *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, pp. 3097-3102, San Diego, CA, October 2014.
- [C13] D. Laird, J. Price and I.A. Raptis. “[Design and validation of a centimeter-scale robot collective.](#)” In *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, pp. 918-923, San Diego, CA, October 2014.
- [C14] M. Sinclair and I.A. Raptis. “[Implementation of a large-scale actuator network for distributed manipulation.](#)” In *Proceedings of the ASME Dynamics Systems and Control Conference (DSCC)*, pp. V001T14A006-V001T14A006, San Antonio, TX, October 2014.

- [C15] D. Laird, J. Price and I.A. Raptis. “[Spider-Bots: A low cost platform for testing and validating cooperative control algorithms.](#)” In *Proceedings of the ASME Dynamics Systems and Control Conference (DSCC)*, pp. V001T14A005-V001T14A005, San Antonio, TX, October 2014.
- [C16] M. Sinclair and I.A. Raptis. “[Distributed manipulation using large-scale actuator networks.](#)” *2014 Zone 1 Conference of the American Society of Engineering Education*, Bridgeport, CT, April 2014. **Undergraduate student honorable mention.**
- [C17] D. Laird, J. Price and I.A. Raptis. “[Spider-Bots: A low cost cooperative robotics platform.](#)” *2014 Zone 1 Conference of the American Society of Engineering Education*, Bridgeport, CT, April 2014.
- [C18] I.A. Raptis, C. Sconyers, R. Martin, R. Mah, N. Oza, D. Mavris, G.J. Vachtsevanos. “[A particle filtering-based framework for real-time fault diagnosis of autonomous vehicles \(PHM\).](#)” *Annual Conference of the Prognostics and Health Management Society*, New Orleans, LA, October 2013.
- [C19] I.A. Raptis and G.J. Vachtsevanos. “[An adaptive particle filtering-based framework for real-time fault diagnosis and failure prognosis of environmental control systems.](#)” *Annual Conference of the Prognostics and Health Management Society (PHM)*, Montreal, Quebec, Canada, September 2011.
- [C20] I.A. Raptis and G.J. Vachtsevanos. “[A health management framework for environmental control systems.](#)” In *Proceedings of the IEEE Mediterranean Conference on Control and Automation (MED)*, pp. 964-969, Corfu, Greece, June 20-23, 2011.
- [C21] C. Sconyers, I.A. Raptis and G.J. Vachtsevanos. “[Rotorcraft control and trajectory generation for target tracking.](#)” In *Proceedings of the IEEE Mediterranean Conference on Control and Automation (MED)*, pp. 1235 - 1240, Corfu, Greece, June 20-23, 2011.
- [C22] I.A. Raptis and K.P. Valavanis. “[Velocity and heading tracking control for small-scale unmanned helicopters.](#)” In *Proceedings of the IEEE American Control Conference (ACC)*, pp. 1579-1586, San Francisco, USA, June 29, 2011.
- [C23] I.A. Raptis, K.P. Valavanis, and W.A. Moreno. “[Backstepping control design for miniature rotorcraft using the rotation matrix.](#)” In *Proceedings of the IEEE Mediterranean Conference on Control and Automation (MED)*, pp. 1227-1232, Thessaloniki, June 24, 2009.

B.3.E INVITED TECHNICAL PRESENTATIONS

- [I1] Worcester Polytechnic Institute, *Cooperative Control, Distributed Manipulation and Multi-Agent Path Planning for Robotic Collectives*, Worcester, MA, April 14, 2017.
- [I2] Locus Robotics, *Warehouse Automation*, Lowell, MA, March 17, 2017.
- [I3] Symbolic, *Warehouse Automation*, Wilmington, MA, March 9, 2017.
- [I4] Air Force Research Laboratory, *Distributed Estimation for Networked Fault Diagnosis of Large-Scale Systems*, Wright-Patterson AFB, Dayton, OH, August 15, 2016.
- [I5] Army Research Laboratory, *Distributed Fault Diagnosis for Spatiotemporal Large-Scale Processes and Networked Control Systems*, RF & Electronics Division, Adelphi, MD, March 16, 2016.
- [I6] Kiva Systems (Amazon Robotics), *Cooperative Control of Small-Scale Robot Collectives and Distributed Fault Detection of Large-Scale Systems*, North Reading, MA, October 15, 2014.
- [I7] Vecna, *A Robotic Experimental Platform for Testing and Validating Warehouse Automation Algorithms*, Cambridge, MA, July 10, 2015
- [I8] Canberra Industries, *Wireless Detection Networks*, Meriden, CT, August 3, 2015

C. INSTRUCTION AND RELATED ACTIVITY

C.1 TEACHING

C.1.A UNDERGRADUATE COURSES TAUGHT AT UNIVERSITY OF NORTH CAROLINA A&T STATE UNIVERSITY

Linear Control Systems, ECEN.410

- Electrical and Computer Engineering senior year elective course.
- Developed all course content.
- Semesters taught: Fall semester 2013 and Spring semester 2020.

C.1.B GRADUATE COURSES TAUGHT AT NORTH CAROLINA A&T STATE UNIVERSITY

Autonomous Mobile Robotic Systems, ECEN.685/885

- Graduate course in Electrical and Computer Engineering; previous title: Autonomous Robotic Systems MECH.5300 at UMass Lowell.
- Developed all course content. Original nationwide course in the area of Autonomous Robotic Vehicles
- Semesters taught: Spring 2020.

C.1.C UNDERGRADUATE COURSES TAUGHT AT UNIVERSITY OF MASSACHUSETTS LOWELL

Dynamics, 22.212 (before Fall 2015) / ENGN.2060 (after Fall 2015)

- Mechanical and Civil Engineering sophomore year course, and Robotics Minor required course for students majoring in engineering and computer science.
- Semesters taught: Fall semesters 2013-2018, and Spring semesters 2014 & 2015.

Dynamic Systems Analysis, 22.451 (before Fall 2015) / MECH.4510 (after Fall 2015)

- Mechanical Engineering senior year course
- Semester taught: Fall 2012

C.1.D GRADUATE COURSES TAUGHT AT UNIVERSITY OF MASSACHUSETTS LOWELL

Dynamic Systems and Controls, 22.554 (before Fall 2015) / MECH.5540 (after Fall 2015)

- Graduate course for the Dynamics and Control concentration area in Mechanical Engineering, elective course for the Energy Engineering Master's program.
- Developed all course content.
- Semesters taught: Fall semesters 2014-2018.

Autonomous Robotic Systems, 22.530 (before Fall 2015) / MECH.5300 (after Fall 2015)

- Graduate course for the Dynamics and Control concentration area in Mechanical Engineering, elective course for the Robotic Minor program (undergraduate)
- Developed all course content. Original nationwide course in the area of Autonomous Robotic Vehicles
- Semesters taught: Spring 2014, Spring 2015, Spring 2016, Spring 2017.

C.1.E UNDERGRADUATE SENIOR CAPSTONE PROJECTS ADVISED AT UNIVERSITY OF MASSACHUSETTS LOWELL

Senior Capstone Design, 22.423 (before Fall 2015) / MECH.4230 (after Fall 2015)

- Integrative design experience in engineering. Students work on multi-disciplinary teams and apply their engineering problem-solving skills on open-ended, real-world projects.
- Semesters taught: Spring 2013, Spring 2014, Spring 2015.
 - 2013, J. Bevan, N. Lutz, R. Mackay, M. Stamatiou *Control Design and Implementation of a Small-Scale Autonomous Hovercraft*.
 - 2014, M. Contarino, D. Fyler, A. Heil, H. Sawyer *Real-time Stabilization of Quadrotor Using Motion Capture System*.
 - 2015, M. Sinclair, *Collision Avoidance for Large-Scale Industrial Transportation Systems*.

C.1.F COURSES TAUGHT/ASSISTED AT UNIVERSITY OF SOUTH FLORIDA

Linear Control Laboratory, EEL 4657

- Electrical Engineering senior year course.
- Laboratory Instructor. Developed course content and laboratory experiments, delivered weekly lectures, conducted laboratory supervising, graded laboratory reports and projects.
- Semesters taught: Fall 2006-2007 & 2009, Spring 2007.

Microprocessor Laboratory, EEL 4743

- Electrical Engineering senior year course.
- Laboratory Instructor. Delivered weekly lectures, conducted laboratory supervising, graded laboratory reports and projects.
- Semester taught: Summer 2008.

Advanced Robotic Systems, CAP 6455

- Computer Science and Engineering graduate course.
- Teaching Assistant. Delivered weekly lectures, supervised student projects.
- Semester taught: Spring 2008.

Computer Organization, CDA 3103

- Computer Science and Engineering undergraduate senior year course.
- Teaching Assistant. Graded student examinations and homework.
- Semester taught: Spring 2008.

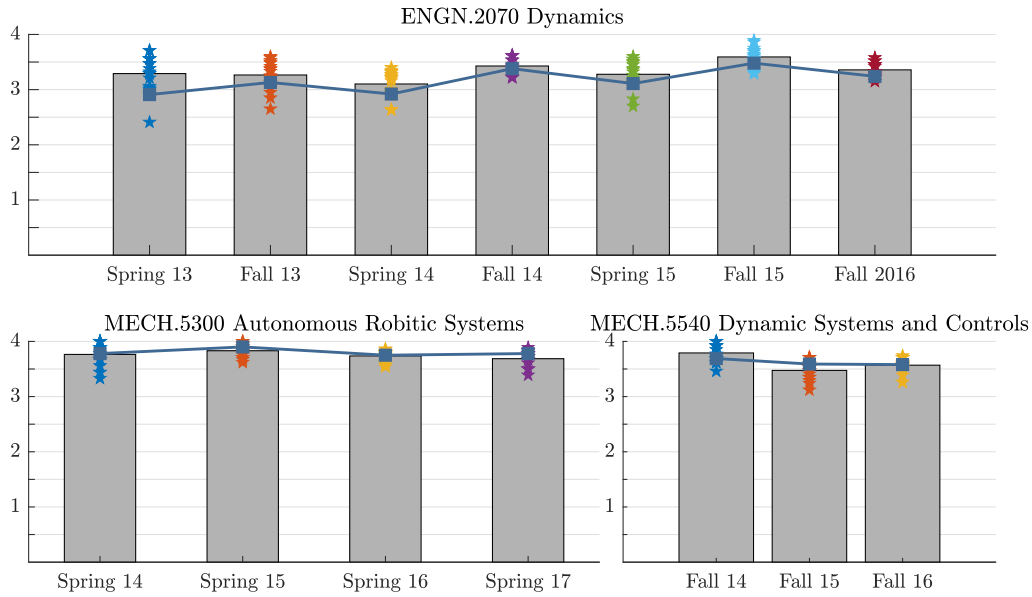
C.1.G COURSES TAUGHT AT THE OHIO STATE UNIVERSITY

Digital Data Acquisition and Signal Processing, ME H680

- Mechanical Engineering honors senior year course.
- Laboratory Instructor. Developed course content and laboratory experiments, delivered weekly lectures, conducted laboratory supervising, graded laboratory reports and projects.
- Semester taught: Spring 2006.

C.1.H COURSE EVALUATION DATA AT UMASS LOWELL FOR THE YEARS 2012-2017

Table 3: Bar markers: average score over all students and all categories of the anonymous surveys; star markers: average score for each question of the survey questionnaire; blue markers: average score of the entry “Overall instructor rating.”



C.2 STUDENT MENTORSHIP

C.2.A GRADUATE STUDENT ADVISOR AT NC A&T AND UMASS LOWELL (THESIS & DISSERTATION)

Table 4: Graduate Students Advised for Thesis & Dissertation Work.

Student Name	Degree	Thesis or Dissertation Title	Graduation Year
Hilina Workneh	M.S., E.C.E.	Data Acquisition of an Experimental Liquid-Level Control Process	May 2021
Lejun Hu*	Ph.D., E.E.	Distributed Fault Diagnosis of Cyber-Physical Systems	January 2020
Angela Bertolino†	M.S., E.E.	Distributed Detection	May 2020
Russell Perkins	M.S., E.E.	Sampling-based Path Planning	May 2019
Mehmet Ali Guney	Ph.D., M.E.	Control of Ground Robots Collectives for Warehouse Automation	August 2018
Elaheh Noursadeghi	Ph.D., M.E.	Distributed Fault Diagnosis for Networked Nonlinear Processes, Multi-Agent Systems, and Source Localization	August 2017
Matthew Spaziani	M.S., M.E.	Design, Programming, and Control of an Autonomous Race Car	May 2018
James Wigglesworth	M.S., M.E.	Conductive Printing via 6-axis Robotic Arm and Monocular Camera System: Control, Tolerance Analysis, and Optimization	May 2018

*Co-advised with Dr. [Charles Thompson](#).

†Co-advised with Dr. [Kavitha Chandra](#).

C.2.B GRADUATE STUDENT THESIS OR DISSERTATION COMMITTEE MEMBER AT UMASS LOWELL

Table 5: Committee Member for Graduate Students Theses & Dissertations.

Student Name	Degree	Thesis or Dissertation Title	Graduation Year
Nicholas Misiunas	Ph.D., E.E.	Synthesis of Non-uniformly Spaced Antenna Arrays Using Data-driven Probabilistic Models	August 2017
Raghu Gowda	Ph.D., M.E.	Development of a Cyber Physical Apparatus for Investigating Fluid Structure Interaction on Leading Edge Vortex Evolution	August 2016
Zhongli Liu	Ph.D., C.S.	Aerial Localization of Wireless Targets: Theory and Implementation	February 2014
Daniel Reagan	M.S., M.E.	Unmanned Aerial Vehicle Measurement Using Three-Dimensional Digital Image Correlation to Perform Bridge Structural Health Monitoring	April 2017
Natasha Miller	M.S., M.E.	Small-Scale Fixed Wing Airplane Software Verification Flight Test	March 2017

C.2.C UNDERGRADUATE STUDENT RESEARCH ADVISOR AT UMASS LOWELL

Table 6: Advisor for Undergraduate Student Research or Honors Thesis

Student Name	Degree	Project Title	Year
Martin Sinclair	B.S., M.E.	Autonomous Morphing Surface	Summer 2013-Spring 2016
Benjamin Roth	B.S., M.E.	Mobile Sensors and Design of a 3-DOF Manipulator	Summer 2015-Summer 2016
Olalekan Osagie Famobiwo	B.S., C.S.	Simulator Environment for Mobile Robots Using ROS	Fall 2015
Benjamin Sullivan	B.S., E.E.	Low-Cost Swarm Robotic Platform	Summer 2014-Spring 2015
Andrew Minior	B.S., E.E.	Vision Control for a Mobile Robot	Summer 2014
Grant Simpson	B.S., E.E.	Multi-Robot Automation System	Summer 2014
Kevin Dibble	B.S., C.S.	Multi-Robot Automation System	Summer 2014
Mark Aruda	B.S., M.E.	Autonomous Morphing Surface	Summer 2013
Justin Woods	B.S., M.E.	Autonomous Morphing Summer	Summer 2013
Damien Laird	B.S., M.E.	Low-Cost Swarm Robotic Platform	Summer 2013-Fall 2013
Maulik Patel	B.S., M.E.	Autonomous Blimp	Summer 2013
Jack Price	B.S., E.E.	Low-Cost Swarm Robotic Platform	Summer 2013-Fall 2013

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Table 6 *Continued from previous page*

Student Name	Degree	Project Title	Year
Matthew Lauer	B.S., E.E.	Autonomous Blimp	Summer 2013
Ian McGaunn	B.S., C.S.	Trajectory Generation for Autonomous Quadcopter	Summer 2013
Thomas Heighton	B.S., M.E.	Centimeter-Scale Robotic Platform	Fall 2012- Spring 2013

D. PROFESSIONAL ACTIVITIES

D.1 PROFESSIONAL ASSOCIATION MEMBERSHIPS

- ASME (American Society of Mechanical Engineers), 2014 – present
- IEEE (Institute of Electrical and Electronics Engineers), Robotics and Automation Society, and Control Systems Society, 2013 – present
- AIAA (American Institute of Aeronautics and Astronautics), 2013 – 2016
- ASEE (American Society for Engineering Education), 2013 – 2015

D.2 PROFESSIONAL HONORS AND AWARDS

- **U.S. Air Force Summer Faculty Fellowship Program (SFFP)**, "Distributed Change Diagnosis for Networked Robotic Systems," Wright-Patterson AFB, June 2016–August 2016 (8 weeks).
- **Recognition for peer reviewed publications**, Faculty Research and Creative Work Symposium, UMass Lowell, March 3, 2016.

D.3 OTHER SERVICE, RECOGNITION AND DEVELOPMENT IN THE COMMUNITY

D.3.A EDITORSHIP

Associate Editor (2018 – present) in the area of *Unmanned Aerial Vehicles* for the proceedings of the *IEEE International Conference on Robotics and Automation (ICRA)*.

Associate Editor (2019) in the area of *Multi-Agent and Networked Systems* for the proceedings of the *ASME Dynamic Systems and Control Conference (DSCC)*.

Associate Editor (2019) in the area of *Fault Diagnosis* for the proceedings of the *ASME/IEEE American Control Conference (ACC)*.

D.3.B REVIEWER FOR SCIENTIFIC JOURNALS AND PEER-REVIEWED CONFERENCE PROCEEDINGS

- Automatica
- Chinese Journal of Aeronautics
- IET Control Theory and Applications
- International Journal of Robust and Nonlinear Control
- Journal of Aerospace Engineering
- Journal of Intelligent and Robotic Systems
- Mechanical Sciences
- Mathematical Problems in Engineering
- ISA Transactions

- IEEE Robotics and Automation Letters
- IEEE Transactions on Aerospace and Electronic Systems
- IEEE Transaction on Control Systems Technology
- IEEE Transactions on Robotics
- IEEE Transactions on Systems, Man, and Cybernetics: Systems
- IEEE American Control Conference
- IEEE Conference on Decision and Control
- IEEE International Conference on Intelligent Robots and Systems
- IEEE International Conference on Robotics and Automation
- IFAC World Congress

D.3.C REVIEWER FOR GRANT PROPOSALS

- **Review Panelist**, NSF Proposal Review Panel in the DCSD (Dynamics, Control and Systems Diagnostics) program, CMMI division, Engineering (ENG) directorate, March 2017 and December 2017.
- **Ad-Hoc Reviewer**, [Technology Foundation TTW](#) (Toegepaste en Technische Wetenschappen) – Dutch Funding Agency, August 2016.

D.3.D PROFESSIONAL SERVICE ACTIVITIES

Conference Session Coordination and Panels

- **Session co-chair**, Distributed Control, ASME 2014 Dynamic Systems and Control Conference.
- **Session co-chair**, Navigation, IEEE 2015 International Conference for Practical Robot Applications.
- **Session co-chair**, Cooperative Manipulators, IEEE 2015 International Conference on Robotics and Automation.
- **Session co-chair**, Diagnostics and Detection, ASME 2015 Dynamic Systems and Control Conference.
- **Session co-chair**, Multi-Agent and Networked Systems 1, ASME 2016 Dynamic Systems and Control Conference.
- **Session co-chair**, Multi-Agent and Networked Systems, ASME 2019 Dynamic Systems and Control Conference.
- **Steering committee member**, International Conference for Practical Robot Applications.

D.3.E PROFESSIONAL DEVELOPMENT (RESEARCH)

Workshops Attended

- *Writing and Designing NSF Proposals Workshop*, December 2012, Shrewsbury MA. Workshop dedicated to writing and developing successful NSF research proposals
- *NSF CMMI CAREER Proposal Writing Workshop*, April 7-9 2013, Tampa FL.
- *NextFlex Roadmapping Workshop*, November 9-10 2016, Lowell MA. Attended the roadmapping sessions for the NextFlex NNMI to assist definition of future project calls.
- *Write Winning NSF Grant Proposals Seminar & Workshop*, September 2019, North Carolina A&T State University. Workshop dedicated to writing and developing successful NSF research proposals

E. SERVICE ACTIVITIES AT UMASS LOWELL

E.1 SERVICE TO THE DEPARTMENT AND UNIVERSITY COMMUNITY

E.1.A ACTIVITIES AT THE UNIVERSITY LEVEL

- *Faculty Senate, Member*, March 2014 to March 2016
 - Serve as a representative from Mechanical Engineering.

E.1.B ACTIVITIES AT THE COLLEGE LEVEL

- *Robotics Minor Coordinator*, Fall 2012 – Present
 - Serving as College of Engineering coordinator for the Robotic Minor. Responsible for advising engineering students that are registered to the minor.
- Dean's Open House, October 27 2013, April 3 2014, October 23 2016, October 30 2016
 - Explained the Mechanical Engineering teaching laboratories, department teaching philosophy, and answered any questions for touring students and parents who were considering UMass Lowell's engineering programs.
- Graduate student recruiting mini-symposium, October 7 2014.
 - Poster presentation of the ARSL's research activities.
- Raytheon UMass Lowell Research Institute (RURI) Opening, September 28 2014.
 - Poster presentation of the ARSL's research activities.
- Faculty Research and Creative Work Symposium
 - Poster presentation and brief talk regarding the research activities at ARSL.

E.1.C ACTIVITIES AT THE DEPARTMENT LEVEL

Mechanical Engineering Academic Advisor, Undergraduate Advisor, Fall 2011 to present

- Currently advise 40 undergraduates in Mechanical Engineering
 - F12: 35, S13: 36, F13: 40, S14: 40, F14: 27, S15: 25, F15: 21, S16: 27, F16: 25, S17: 20

Faculty Search Committee, Member, January-May 2016, January-May 2017

- 2015-2016: Search committee member. Hosted 3 candidates on campus interviews.
- 2016-2017: Search committee chair. Hosted 4 candidates on campus interviews. Resulted in a hire.

E.2 OUTREACH

Demonstration at the Ayer Shirley Regional Middle School, September 28, 2013

- Live demonstration of small-scale robotic modules developed at the Autonomous Robotic Systems Laboratory (ARSL) to middle school students.

F. PROFESSIONAL REFERENCES

Dr. Charles Thompson

Professor, Department of Electrical and Computer Engineering, University of Massachusetts Lowell

✉ Kitson Hall 312, 1 University Avenue, Lowell, MA 01854

☎ +1(978) 934-3360

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