ALYSSA PIERSON

pierson@bu.edu

EDUCATION

PhD, Mechanical Engineering, Boston University	2017
Visiting Student, Stanford University	2016
MS, Mechanical Engineering, Boston University	2016
BS, Engineering, Harvey Mudd College	2010
Study Abroad: University of Western Australia	2009

EMPLOYMENT

Assistant Professor, Dept. of Mechanical Engineering, Boston University	Jan 2021 - Present
Secondary Appointment, Division of Systems Engineering, Boston University	Sep 2022 - Present
Chief Scientist, AVA Robotics	Sep 2020 - Present
Research Scientist, CSAIL, Massachusetts Institute of Technology	Dec 2018 - Dec 2020
Postdoctoral Associate, CSAIL, Massachusetts Institute of Technology	Feb 2017 - Dec 2018
Research Assistant, Dept. of Mechanical Engineering, Boston University	May 2012 - Jan 2017
Engineer, Graduate Development Program, Cobham, plc	Sep 2010 - May 2012

HONORS & AWARDS

• MassRobotics Rising Star Award	2023
• NSF CAREER Award	2023
• Honorable Mention, IEEE T-RO King-Sun Fu Memorial Best Paper Award	2021
• Best Conference Paper Finalist, IEEE ICRA	2016
• Clare Boothe Luce Fellowship, Boston University	2012 - 2014
• Dean's Fellowship, Boston University (declined)	2012
• Graduated with Distinction, Harvey Mudd College	2010
• Dean's List, Harvey Mudd College	2007 - 2010

FUN FACTS

• Winner, MIT Postdoctoral Associate Science Karaoke	2019
• *Prosh* lead photoshopper, University of Western Australia	2009
— Satirical newspaper to raise money for Perth charities. Raised over $139,000 in 2009	
• Valedictorian, Steamboat Springs High School, Colorado	2006
• Avid skier, SCUBA diver (96 dives), and cyclist	∞

RESEARCH INTERESTS

Multi-robot systems · Distributed control · Decentralized communication and coordination · Cooperation dynamics in multi-agent teams · Online adaptive control · Socially-compliant autonomous systems

RESEARCH EXPERIENCE

Collaborative Autonomy Group, Boston University   **January 2021 - Present**

Principal Investigator

- Exploring collaborative autonomy and cooperation dynamics in multi-agent systems
- Focus on control theory of semi-cooperative interactions and asymmetric games
- Affiliated with the Boston University Robotics Laboratory

Distributed Robotics Laboratory, CSAIL, MIT   **Feb 2017 - Dec 2020**
Supervisors: Prof. Daniela Rus, Prof. Sertac Karaman
   • Working on the Parallel Autonomy project within the Toyota-CSAIL Joint Research Center
   • Design control algorithms for autonomous vehicles interacting and cooperating with human drivers
   • Focus on modeling social behaviors for autonomous vehicles and socially-aware control policies
   • Hardware implementations on autonomous wheelchair and 1/10th scale autonomous racecars

Multi-Robot Systems Lab, Boston University & Stanford University   **May 2012 - Jan 2017**
Advisor: Prof. Mac Schwager
   • Thesis: Analysis of multi-agent systems under varying degrees of trust, cooperation, and competition
   • Design online control algorithms for nonlinear-distributed, and heterogeneous multi-robot systems
   • Hardware implementations using variety of ground and aerial platforms: KMEL Nano+ quadrotors, Pololu m3pis, Ouijabots, and Dexter Industries GoPiGo ground robots

Flight Analysis of a Turning Pigeon, Harvey Mudd College   **2008 - 2011**
Advisors: Prof. Lori Bassman, Dr. Ivo Ros
   • Rigorous kinematic analysis of pigeon's body movements through 90° turn
   • Project commissioned by Concord Field Station and Harvard University
   • Analysis demonstrated pigeons generate upstroke lift and turn similar to helicopters during flight

COURSES TAUGHT

Introduction to Robotics and Autonomous Systems (EK505)   Fall 2022
College of Engineering, Boston University
   • Enrollment: 49, primarily first-year graduate students
   • First time teaching course

Engineering Mechanics II (ME302)   Spring 2022
Department of Mechanical Engineering, Boston University
   • Enrollment: 44, primarily junior-year undergraduates

Engineering Mechanics II (ME302)   Spring 2021
Department of Mechanical Engineering, Boston University
   • Enrollment: 76, primarily junior-year undergraduates
   • Hybrid online and in-person due to COVID-19 pandemic
   • First time teaching course

MENTORING AND SERVICE

   • Graduate & Research Programs Committee, Mechanical Engineering, BU   July 2022 - Present
   • Professor of Practice Search Committee, Mechanical Engineering, BU   July 2022 - Present
   • Graduate Admissions Reviewer, Mechanical Engineering, BU   2021 - Present
   • Committee for Diversity, Equity, and Inclusion, EECS, MIT   2019 - 2020
   • Postdoctoral Affairs Visiting Committee Co-Chair, EECS, MIT   2019
   • Undergraduate Research (UROP) Supervisor, MIT   2017 - 2020
   • Graduate Admissions Committee, EECS, MIT   2017, 2018
   • Alumni Admissions Ambassador, Harvey Mudd College   since 2012
   • BU RISE Program Mentor, Boston University   2014
   • FIRST Lego League Mentor, Lincoln Laboratory   2012
   • Dormitory Affairs Committee Chair, Harvey Mudd College   2009 - 2010
   • Honor Board Member, Harvey Mudd College   2008

RESEARCH ADVISING

PhD Students

Mela Coffey, Mechanical Engineering, Boston University	Feb 2021 - Present
Lile Zhang, Mechanical Engineering, Boston University	Sep 2021 - Present
Brennan Brodt, Mechanical Engineering, Boston University	Sep 2021 - Present
Kamran Vakil, Mechanical Engineering, Boston University	Sep 2022 - Present

Masters Students

Karan Mudgal, Draper Fellowship, Mechanical Engineering, Boston University	Sep 2022 - Present
Jorge Paolo Casas, Robotics & Autonomous Systems, Boston University	May 2021 - Sep 2021

Undergraduate Students

Jared Pratt, Mechanical Engineering, Boston University	May 2021 - Aug 2022

Dissertation Defense Committees

Mahroo Bahreinian, Systems Engineering, Boston University	Fall 2022

Master's Thesis Committees

Franco Julia Wise, Mechanical Engineering, Boston University	Fall 2022
Mark Baldiswieler, Mechanical Engineering, Boston University	Spring 2022
Tomoya Negishi, Mechanical Engineering, Boston University	Spring 2022

Prospectus Defense Committees

Mela Coffey, Mechanical Engineering, Boston University	May 2023
Yancheng Zhu, Mechanical Engineering, Boston University	February 2023
Dheepak Arumkhom Revi, College of Engineering, Boston University	June 2022
Marc Mitjans | Coma, Mechanical Engineering, Boston University	April 2022
Erfan Aasi, Mechanical Engineering, Boston University	March 2022
Dawei Zhang, Mechanical Engineering, Boston University	May 2021

PhD Qualifying Exam Committees

Kamran Vakil, Mechanical Engineering, Boston University	May 2023
Juan Pacheco Garcia, Mechanical Engineering, Boston University	May 2023
Meredith Anderson, Mechanical Engineering, Boston University	July 2022
Ran Jing, Mechanical Engineering, Boston University	July 2022
Shuo Liu, Mechanical Engineering, Boston University	July 2022
Peter Crowley, Mechanical Engineering, Boston University	July 2022
Lile Zhang, Mechanical Engineering, Boston University	July 2022
Brennan Brodt, Mechanical Engineering, Boston University	July 2022
Yancheng Zhu, Mechanical Engineering, Boston University	November 2021
Mela Coffey, Mechanical Engineering, Boston University	November 2021

STUDENTS MENTORED

Graduate Students
Wilko Schwarting (MIT) · Noam Buckman (MIT) · Aaron Ray (MIT) · Teddy Ort (MIT) · Brandon Araki (MIT)

Undergraduate Students
Leonardo Zamora (MIT) · Lucy Liao (MIT) · Nikhil Singhal (MIT) · Anshula Gandhi (MIT) · John Aleman (BU) · Lucas Coelo Figueiredo (UFMG) · Frank Tarimo (BU) · Lili Gu (BU)

High School Students
Rebecca Wong (BU RISE) · Gadiel Sznaier-Camps (BU Academy)

PROFESSIONAL ACTIVITIES

Roles and Editorships:
Co-Chair, IEEE RAS Technical Committee on Multi-Robot Systems	March 2022 - Present
Associate Editor, IEEE Robotics and Automation Letters (RA-L)	Dec 2020 - March 2023
Associate Editor, Intl. Conference on Intelligent Robots and Systems (IROS)	2021
Associate Editor, Intl. Conference on Intelligent Robots and Systems (IROS)	2019
Associate Editor, Intl. Conference on Intelligent Robots and Systems (IROS)	2018

Conference and Workshop Organization:
General Chair, International Symposium on Multi-Robot and Multi-Agent Systems (MRS)	2023
Program Chair, International Symposium on Distributed Autonomous Robotic Systems (DARS)	2022
Program Committee, Workshop on the Algorithmic Foundations of Robotics (WAFR)	2022
Co-Organizer, IROS Workshop "Cognitive and Social Aspects of Human Multi-Robot Interaction"	2021
Session Co-Chair, Multi-Robot Systems II, IROS Conference	2021
Co-Organizer and Session Chair, ICRAxMIT Conference	2020
Program Committee, Intl. Conference on Autonomous Agents and Multi-Agent Systems (AAMAS)	2020
Program Committee, Intl. Symposium on Multi-Robot and Multi-Agent Systems (MRS)	2019

Grant Proposal Reviewing
NSF Panel	2023

Professional Memberships
IEEE Member · IEEE Women in Engineering · IEEE Robotics and Automation Society · IEEE Young Professionals · IEEE Control Systems Society

Journal Reviewer for:
Automatica · Autonomous Robots (AURO) · International Journal of Advanced Robotic Systems (IJARS) · IEEE Robotics and Automation Letters (RA-L) · IEEE Control Systems Letters (L-CSS) · IEEE Transactions on Automation Science and Engineering (T-ASE) · IEEE Transactions on Robotics (T-RO) · IEEE Transactions on Automatic Control (TAC) · Robotics and Autonomous Systems

Conference Reviewer for:
American Control Conference (ACC) · IEEE Conference on Decision and Control (CDC) · Distributed Autonomous Robotic Systems (DARS) · IEEE International Conference on Robotics and Automation (ICRA) · IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) · IEEE International Symposium on Multi-Robot and Multi-Agent Systems (MRS) · Robotics: Science and Systems (RSS) · Indian Control Conference (ICC) · Mediterranean Conference on Control and Automation (MED)

PUBLICATIONS

*denotes student mentee co-author
+denotes student advisee co-author

Journal Publications

[J8] W. Schwarting*, **A. Pierson**, S. Karaman, and D. Rus. Stochastic dynamic games in belief space. *IEEE Transactions on Robotics*, pages 1–16, 2021, **Honorable Mention for the King-Sun Fu Memorial Best Paper Award**

[J7] W. Schwarting*, **A. Pierson**, J. Alonso-Mora, S. Karaman, and D. Rus. Social behavior for autonomous vehicles. *Proceedings of the National Academy of Sciences*, 116(50):24972–24978, 2019

[J6] S. G. McGill, G. Rosman, T. Ort*, **A. Pierson**, I. Gilitschenski, B. Araki*, L. Fletcher, S. Karaman, D. Rus, and J. J. Leonard. Probabilistic risk metrics for navigating occluded intersections. *IEEE Robotics and Automation Letters*, 4(4):4322–4329, Oct 2019, with joint IROS option

[J5] **A. Pierson** and M. Schwager. Controlling noncooperative herds with robotic herders. *IEEE Transactions on Robotics*, 34(2):517–525, April 2018

[J4] **A. Pierson**, Z. Wang, and M. Schwager. Intercepting rogue robots: An algorithm for capturing multiple evaders with multiple pursuers. *IEEE Robotics and Automation Letters*, 2(2):530–537, April 2017

[J3] **A. Pierson**, L.C. Figueiredo*, L. CA Pimenta, and M. Schwager. Adapting to sensing and actuation variations in multi-robot coverage. *The International Journal of Robotics Research*, 36(3):337–354, 2017

[J2] I.G. Ros, M. Badger, **A. Pierson**, L. Bassman, and A. Biewener. Pigeons produce aerodynamic torques through changes in wing trajectory during low speed aerial turns. *Journal of Experimental Biology*, 218(3):480–490, 2015

[J1] I.G. Ros, L. Bassman, M. Badger, **A. Pierson**, and A. Biewener. Pigeons steer like helicopters and generate down- and upstroke lift during low speed turns. *Proceedings of the National Academy of Sciences*, 108(50):19990–19995, 2011

Conference Publications

[C21] B. Brodt+ and **A. Pierson**. Obscuring objectives with pareto-optimal privacy-aware trajectories. *2023 IEEE International Conference on Robotics and Automation (ICRA)*, May 2023, accepted

[C20] M. Coffey+ and **A. Pierson**. Heterogeneous coverage and multi-resource allocation in supply-constrained teams. *2023 IEEE International Conference on Robotics and Automation (ICRA)*, May 2023, accepted

[C19] M. Coffey+ and **A. Pierson**. Collaborative teleoperation with haptic feedback for collision-free navigation of ground robots. In *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 8141–8148, 2022

[C18] A. Ray*, **A. Pierson**, and D. Rus. Free-space ellipsoid graphs for multi-agent target monitoring. In *2022 International Conference on Robotics and Automation (ICRA)*, pages 6860–6866, 2022

[C17] A. Ray* **A. Pierson**, H. Zhu, J. Alonso-Mora, and D. Rus. Multi-robot task assignment for aerial tracking with viewpoint constraints. In *2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 1515–1522. IEEE, 2021

[C16] **A. Pierson**, J.W. Romanishin, H. Hansen, L. Zamora Yañez*, and D. Rus. Designing and deploying a mobile uvc disinfection robot. In *2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pages 6700–6707, 2021

[C15] Z. Huang, W. Schwarting*, **A. Pierson**, , H. Guo, M. Ang Jr., and D. Rus. Safe path planning with multi-model risk level sets. *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, October 2020

[C14] **A. Pierson**, W. Schwarting*, S. Karaman, and D. Rus. Weighted buffered voronoi cells for distributed semi-cooperative behavior. In *2020 IEEE International Conference on Robotics and Automation (ICRA)*, pages 5611–

5617, 2020

[C13] N. Buckman*, **A. Pierson**, S. Karaman, and D. Rus. Generating visibility-aware trajectories for cooperative and proactive motion planning. *2020 IEEE International Conference on Robotics and Automation*, May 2020

[C12] S. G. McGill, G. Rosman, T. Ort*, **A. Pierson**, I. Gilitschenski, B. Araki*, L. Fletcher, S. Karaman, D. Rus, and J. J. Leonard. Probabilistic risk metrics for navigating occluded intersections. *IEEE Robotics and Automation Letters*, 4(4):4322–4329, Oct 2019, Joint RA-L and IROS paper, accepted into IROS proceedings.

[C11] N. Buckman*, **A. Pierson**, W. Schwarting*, S. Karaman, and D. Rus. Sharing is caring: Socially-compliant autonomous intersection negotiation. In *2019 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, November 2019

[C10] **A. Pierson**, W. Schwarting*, S. Karaman, and D. Rus. Learning risk level set parameters from data sets for safer driving. In *2019 IEEE Intelligent Vehicles Symposium (IV)*, pages 273–280, June 2019 **Selected for Oral Presentation (<10% of accepted papers)**

[C9] **A. Pierson**, C. Vasile, A. Gandhi*, W. Schwarting*, S. Karaman, and D. Rus. Dynamic risk density for autonomous navigation in cluttered environments without object detection. In *2019 International Conference on Robotics and Automation (ICRA)*, pages 5807–5814, May 2019

[C8] **A. Pierson**, W. Schwarting*, S. Karaman, and D. Rus. Navigating congested environments with risk level sets. In *2018 IEEE International Conference on Robotics and Automation (ICRA)*, pages 1–8, May 2018

[C7] **A. Pierson** and D. Rus. Distributed target tracking in cluttered environments with guaranteed collision avoidance. In *2017 International Symposium on Multi-Robot and Multi-Agent Systems (MRS)*, pages 83–89, Dec 2017

[C6] **A. Pierson**, Z. Wang, and M. Schwager. Intercepting rogue robots: An algorithm for capturing multiple evaders with multiple pursuers. *IEEE Robotics and Automation Letters*, 2(2):530–537, April 2017 Joint RA-L and ICRA paper, accepted into ICRA proceedings.

[C5] **A. Pierson**, A. Ataei, I. C. Paschalidis, and M. Schwager. Cooperative multi-quadrotor pursuit of an evader in an environment with no-fly zones. In *2016 IEEE International Conference on Robotics and Automation (ICRA)*, pages 320–326, May 2016 **Best Conference Paper Finalist**

[C4] **A. Pierson** and M. Schwager. Bio-inspired non-cooperative multi-robot herding. In *Robotics and Automation (ICRA), 2015 IEEE International Conference on*, May 2015

[C3] **A. Pierson**, L. C. Figueiredo*, L. C. A. Pimenta, and M. Schwager. Adapting to performance variations in multi-robot coverage. In *Robotics and Automation (ICRA), 2015 IEEE International Conference on*, pages 415–420, May 2015

[C2] **A. Pierson** and M. Schwager. Adaptive inter-robot trust for robust multi-robot sensor coverage. In *International Symposium on Robotics Research*, 2013

[C1] I.G. Ros, M. Badger, **A. Pierson**, L. Bassman, and A. Biewener. Translational and rotational components of low speed turning in the pigeon columba livia. In *Integrative and Comparative Biology*, volume 51, pages E117–E117. Oxford Univ Press Inc Journals Dept, 2001 Evans Rd, Cary, NC 27513 USA, 2011

Manuscripts Under Review

[R1] M. Coffey and A. Pierson, "Serving Dynamic Demand with Multi-Resource Heterogeneous Teams," under review for IROS 2023

[R2] M. Coffey, D. Zhang, R. Tron, and A. Pierson, "Reactive and Safe Co-Navigation with Haptic Guidance," under review for IROS 2023

Thesis

A. Pierson. *Analysis of Multi-Agent Systems Under Varying Degrees of Trust, Cooperation, and Competition.* PhD Thesis, Boston University, January 2017.

Workshops and Poster Sessions

- M. Coffey and A. Pierson, "Heterogeneous Coverage and Multi-Resource Allocation in Supply-Constrained Teams," abstract accepted for poster session at the International Symposium on Distributed Autonomous Robotic Systems, Nov 2022
- "Autonomous Navigation in Cluttered Environments without Object Tracking," Lightning Talk at the GW6 Research Summit, MIT, Sep 2019
- N. Buckman, A. Pierson, W. Schwarting, S. Karaman, and D. Rus. "Intersection Coordination of Mixed Autonomous and Human Vehicles with Heterogeneous Social Preferences," accepted for spotlight presentation at *Resilient Robot Teams: Composing, Acting, and Learning* workshop, ICRA, May 2019
- A. Pierson, W. Schwarting, S. Karaman, and D. Rus. "Risk Level Sets without Object Detection," poster session, 3rd Annual TRI Joint Workshop, Jan 2019
- A. Pierson, W. Schwarting, S. Karaman, and D. Rus. "Navigating in Congestion with Risk Level Sets," poster session, 2nd Annual TRI Joint Workshop, Dec 2017
- A. Pierson and M. Schwager. "Adaptive Trust in Multi-Robot Coverage Control," invited poster session talk for Northeastern Robotics Colloquium, Oct 2013
- A. Pierson and M. Schwager. "Adaptive Trust in Multi-Robot Systems," accepted for presentation at *Networked Multi-Agent Systems* workshop at ICRA, May 2013

INVITED TALKS

In addition to conference talks, below are invited talks about my research:

- "Modeling Semi-Cooperative Multi-Agent Interactions," invited speaker for the *Strategic Multi-Agent Interactions: Game Theory for Robot Learning and Decision Making* workshop at CoRL, December 2022
- "Design and Control of Semi-Cooperative Multi-Agent Teams," invited speaker for the *Human-Multi-Robot Systems: Challenges for Real World Applications* workshop at IROS, October 2022
- "Modeling Interactions within Multi-Agent Autonomous Driving," invited speaker for the *Behavior-driven Autonomous Driving in Unstructured Environments* workshop at IROS, October 2022
- "Designing Cooperative Multi-Agent Teams and Socially-Aware Autonomy," invited lecture for the *IEEE RAS Summer School on Multi-Robot Systems*, Czech Technical University, August 2022
- "Cooperation of Multi-Agent Teams Amidst Clutter," invited speaker for the *First Workshop on Robot Versatility*, Lehigh University, May 2022
- "Coordinating Multi-Agent Interactions in Cluttered Environments," UNH Robot Seminar Series, April 2022
- "Predicting Behaviors of Unknown Agents in Autonomous Systems," invited speaker for the *Perception and Control for Autonomous Navigation in Crowded, Dynamic Environments* workshop at RSS, July 2021
- "Designing Cooperative and Socially-Aware Autonomy," Institute for Assured Autonomy seminar series, Johns Hopkins University, March 2021
- "Modeling Socially-Aware and Risk-Aware Autonomy," invited speaker for the *Workshop on Perception for Autonomous Driving* at ECCV, August 2020
- "Designing a UVC Robot for the Fight Against COVID-19," seminar for MIT Horizon, August 2020
- "CSAIL x AVA UVC Robot," Coronavirus Tracking Project for Rapid-Prototyping Response Sync Meeting, MIT Center for Bits and Atoms, August 2020
- "Social Behavior for Autonomous Robots," seminar for MIT Horizon, July 2020
- "Modeling Socially-Aware and Risk-Aware Autonomy," invited speaker for the *Interaction and Decision-Making in Autonomous-Driving* workshop at RSS, July 2020
- Invited panelist member for the "Healthcare, AI, Robotics & The DoD," panel at SXSW, March 2020 *Note: this panel was cancelled due to the Covid-19 pandemic*
- "Designing Cooperative, Collaborative, and Competitive Multi-Robot Teams," Northeastern University, Mar 2020
- "Designing Cooperative, Collaborative, and Competitive Multi-Robot Teams," Boston University Mechanical Engineering Spring 2020 Seminar Series, Mar 2020

- "Designing Cooperative, Collaborative, and Competitive Multi-Robot Teams," Colorado School of Mines, Jan 2020
- "Risk-Aware and Socially-Aware Autonomy," 4th Annual TRI Joint Workshop, Jan 2020
- "Decision Making for Autonomous Systems in Cluttered Environments," Singapore-MIT Alliance for Research and Technology (SMART) Future Urban Mobility Seminar, Aug 2019
- "Navigating Congested Environments with Risk Level Sets," 3rd Annual TRI Joint Workshop, Jan 2019
- "Diver's Ed for Autonomous Vehicles," guest lecture for MIT Beaverworks Summer Institute, July 2018
- "Controlling Non-Cooperative Herds with Robotic Herders," invited speaker for the *Swarms: From Biology to Robotics and Back* workshop at ICRA, May 2018
- "Socially-Compliant Behavior for Autonomous Driving," 2nd Annual TRI Joint Workshop, Dec 2017
- "Intercepting Rogue Robots: An Algorithm for Capturing Multiple Evaders with Multiple Pursuers," presentation at MIT Robocon, Feb 2017
- "Analysis of Multi-Agent Systems Under Varying Degrees of Trust, Cooperation, and Competition," Distributed Robotics Lab, MIT, Dec 2016

IN THE NEWS

Interviews

MassTLC Profile on Ava Robotics	December 2021
Featured in the "Women in Computer Vision" column for *Computer Vision News: ECCV Daily*	August 2020
UVC Robot features on Boston local news channels WFXT, WHDH, WCVB	July 2020
UVC Robot feature on WGBH Boston's Local NPR	June 2020

Media Highlights

Quoted in WSJ Article "Robotics Researchers Focus on Teamwork"	April 2023
UVC robot featured on front page of CNN Business website, video feature	July 2020
UVC robot featured on front page of MIT News and MIT website	June 2020
Autonomous driving work featured in the NOVA documentary *Look Who's Driving Now*	October 2019
Pigeon flight dynamics work featured on NPR's Science Friday "Flight of the Wild Pigeon"	December 2011

Press Coverage

CNN · NPR · Wired · MIT News · TechCrunch · Forbes · Engadget · IEEE Spectrum Video Friday · Ars Technica · The Robot Report · Communications of the ACM News · The Next Web · Supply Chain Dive · World Economic Forum · Syfy · Tech Xplore · Mercury News · Daily Mail · Jalopnik · Interesting Engineering · Good News Network

PATENTS

- US Patent No 11,300,968, "Navigating Congested Environments with Risk Level Sets," corresponding conference paper: [C8]

PATENT APPLICATIONS

- US Patent Application No 17/520,650, "Autonomous, mobile robotic apparatus for applying disinfection to an interior area"
- US Patent Application No 17/520,651, "Method and apparatus for planning a disinfection path for an autonomous, mobile robotic device"
- US Patent Application No 17/520,654, "Method and apparatus for calculating a dosage of disinfectant applied to an area by an autonomous, mobile robotic device"
- US Provisional Patent Application No 62/936,033, "Social Behavior for Autonomous Vehicles," corresponding journal paper: [J7]
- US Patent Application No 16/741,039, "Autonomous Navigation in a Cluttered Environment," corresponding con-

ference paper: [C9]
- US Patent Application No 16/440,546, "Systems and Methods for Estimating the Risk Associated with a Vehicular Maneuver," corresponding journal paper: [J6]

ADDITIONAL WORK AND PROJECT EXPERIENCE

Cobham Graduate Development Program, Cobham, plc   2010 - 2012
- Rotation program to gain exposure across various Cobham business units
- Design Engineer, *Carleton Technologies, Orchard Park, NY*
  — Oxygen Life Support team, pneumatic devices, and PHANTOM products
- Program Manager, *Carleton Technologies, Orchard Park, NY*
  — Managed several engineering teams within the Space Actuation Systems group
- Design and Operations Engineer, *DTC Communications, Nashua, NH*
  — New product design and documentation for audio/video concealments group
- Project Manager, *DTC Communications, Nashua, NH*
  — Coordinated the transition of the Nashua facility to other Cobham locations

University of Iceland Global Clinic, Harvey Mudd College   2009 - 2010
- Joint project between Harvey Mudd and the University of Iceland, team leader for second semester
- Designed a small-scale Organic Rankine Cycle system to generate electricity from a low-temperature heat source for use as "backyard waste heat reclamation," worked with 3M to test Novec fluid

Nike Clinic, Harvey Mudd College   2008
- Designed prototype shoes that are manufactured as independent parts and assembled at the retail level
- Focus on consumer customization, small-scale manufacturing processes and design feasibility

Software QA Engineer Intern, Laserfiche   2008
- Wrote test protocols and training seminars for QA engineers and help manuals for general users
- Tested the user interface of Laserfiche product suite to improve usability

SKILLS AND CERTIFICATIONS

- Programming languages: MATLAB (fluent), Python (fluent), ROS (proficient), C++ (proficient)
- AutoCAD, Solidworks, Adobe Creative Suite, VBA, Microsoft Office, LaTeX
- Wordpress and Drupal website building
- Metal/wood machine shop experience
- Engineer-In-Training (EIT) Certified   April 2010

REFERENCES

Available upon request.