Alexander James Wallar

Email: wallar@mit.edu , Website: http://wallar.me
32 Vassar St. Room 376, Cambridge, MA 02139

Education

S.M/Ph.D. Electrical Engineering and Computer Science — Sept 2015 – present
Massachusetts Institute of Technology, Cambridge, MA
Advisor: Prof. Daniela Rus
GPA: 5.0/5.0

B.Sc. (Honours) Computer Science — Sept 2012 – June 2015
University of St Andrews, St Andrews, Scotland
First Class Honours Degree Classification

Experience

Research Scientist Intern — May 2016 – Aug 2016
Research and Development Group
Amazon Robotics, Boston
- Analyzed and developed algorithms for drive prioritization in order to reduce floor congestion

Research Scientist (Contractor) — Jan 2015 – Aug 2015
Distributed Autonomous Systems Group
Naval Research Laboratory, Washington DC
- Developed algorithms for multi-agent persistent surveillance of risk sensitive areas

Research Intern — May 2014 – Aug 2014
Distributed Autonomous Systems Group
Naval Research Laboratory, Washington DC
- Developed algorithms for persistent surveillance and topological collision avoidance

NSF Research Intern — May 2013 – Aug 2013
Experiment Research in Wireless Networking Group
University of Notre Dame, South Bend
- Created a JavaScript library for in-browser eye tracking and gaze prediction

Publications

1. J. Alonso-Mora, **A. Wallar**, D. Rus. 2016. Vehicle Routing and Passenger Assignment for Ride Sharing with Predicted Demand. *International Conference on Robotics and Automation*. Under review.
2. J. Alonso-Mora, S. Samaranayake, **A. Wallar**, E. Frazzoli, and D Rus. 2016. Ride Vehicle Assignment and Analysis of the Benefits of High Capacity Vehicle Pooling. *Proceedings of the National Academy of Sciences*. Under review.
3. **A. Wallar**, E. Plaku, and D. Sofge. 2015. Reactive Motion Planning for Unmanned Aerial Surveillance of Risk-Sensitive Areas. *IEEE Transactions on Automation Science and Engineering*, pp. 969 – 980
4. D. Sofge, N. Sydney, **A. Wallar**, and K. Sullivan. 2015. Mobile Autonomous Navy Teams for Information Surveillance and Search (MANTISS). *Naval Research Laboratory Review*, pp. 155 – 157
5. **A. Wallar** and E. Plaku. 2014. Path Planning for Swarms in Dynamic Environments by Combining Probabilistic Roadmaps and Potential Fields. *IEEE Symposium on Swarm Intelligence*

6. **A. Wallar**, E. Plaku, and D. Sofge. 2014. A Planner for Autonomous Risk-Sensitive Coverage (PARCov) by a Team of Unmanned Aerial Vehicles. *IEEE Symposium on Swarm Intelligence*
7. **A. Wallar** A and E. Plaku. 2014. Path Planning for Swarms by Combining Probabilistic Roadmaps and Potential Fields. *Springer LNAI Towards Autonomous Robotic Systems*, vol. 8069, pp. 417 – 428

Theses

1. **A. Wallar**. 2015. Generating Safe Trajectories in Stochastic Dynamic Environments by Leveraging Information About Obstacle Motion. Undergraduate Thesis. University of St Andrews

Posters & Presentations

1. N. Sydney, **A. Wallar**, D. Sofge. 2015. Distributed Information-Theoretic Target Detection Using Physics-Inspired Motion Coordination. *8th International Symposium on Resilient Control Systems*
2. **A. Wallar**, E. Plaku, and D. Sofge. 2014. Risk Sensitive Surveillance with Optimal Sensor Quality for Distributed Robotic Systems. *Entrepreneur First UnHacked*
3. **A. Wallar** A, C. Poellabauer, A. Sazonovs, and P. Flynn. 2014. Camgaze.js: A JavaScript Library for Eye Tracking and Gaze Prediction. *Edinburgh University Young Scientific Researchers Association (EUYSRA) Conference*
4. **A. Wallar**, C. Choi, and A. Sazonovs. 2013. Bowtie: In-browser Mobile Aided Sensor Acquisition using HTML5. *Scottish Informatics and Computer Science Alliance (SICSA) DemoFest*
5. **A. Wallar**, C. Poellabauer, A. Sazonovs, and P. Flynn. 2013. Camgaze.js: A JavaScript Library for Eye Tracking. *Scottish Informatics and Computer Science Alliance (SICSA) DemoFest*

Awards

School of Engineering Lemelson Presidential Fellowship, MIT, 2015 – 16
Office of the Dean of Graduate Education Diversity Fellowship, MIT, 2015 – 16
Dean's List, University of St Andrews, 2012 – 2015
Best Poster Prize, University of Notre Dame NSF REU Conference, 2013
Winner, J.P. Morgan Code for Good Hackathon, 2013

Publication Reviewing

International Conference on Robotics and Automation
International Symposium on Distributed Autonomous Robotic Systems

Courses

Massachusetts Institute of Technology: Advances in Computer Vision, Advanced Algorithms, Computer Networks

University of St Andrews: Foundations of Computation (Accelerated), Advanced Programming Projects, Advanced Computer Science, Discrete Mathematics, Software Engineering, Data Encoding, Operating Systems, Computational Complexity, Artificial Intelligence, Component Technology, Major Software Team Project, Video Games, Artificial Intelligence Practice, Logic and Software Verification, Knowledge Discovery and Data Mining, Distributed Systems, Constraint Programming, Major Software Project