Approved by the Regents May 15, 2014

PROMOTION RECOMMENDATION
University of Michigan
College of Engineering
Department of Electrical Engineering and Computer Science

Edwin B. Olson, assistant professor of electrical engineering and computer science, Department of Electrical Engineering and Computer Science, College of Engineering, is recommended for promotion to associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Academic Degrees:

Ph.D.	2008	Massachusetts Institute of Technology, Computer Science and Engineering, Cambridge, MA
M.E.	2001	Massachusetts Institute of Technology, Electrical Engineering and Computer Science, Cambridge, MA
B.S.	2000	Massachusetts Institute of Technology, Electrical Engineering and Computer Science, Cambridge, MA

Professional Record:

2008 – present	Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan
2008 – 2008	Graduate Student Research Assistant, Massachusetts Institute of Technology, Cambridge, MA
2001 – 2002	Senior Software Engineer, Permabit, Incorporated, Cambridge, MA
2000	Software Engineer, Trenza Corporation, Cambridge, MA

Summary of Evaluation:

Teaching: Professor Olson is an outstanding educator who has made significant contributions to undergraduate and graduate robotics education. An energetic, engaging, and dedicated teacher, he has introduced a new undergraduate course on autonomous robotics (EECS 467: Autonomous Robotics Lab). Furthermore, he has supervised over 20 independent studies, co-advised the UM Michigan Autonomous Aerial Vehicles (MAAV) student teams from 2010 onward, the UM Mars Rover student teams from 2011 onward, the UM: Autonomy (autonomous boat) student team from 2010 onward, and the Michigan Student Artificial Intelligence Laboratory (MSAIL) from 2009 onward. At the graduate level, he is advising seven Ph.D. students, three of whom are expected to finish their dissertation by Fall 2014. Professor Olson has excelled in outreach activities, having taught short courses and workshops to elementary school students, high school teachers, and HBCU robotics faculty. He has also taken advantage of SROP and ARTSI (Advancing Robotics Technology for Societal Impact) programs for engaging and mentoring under-represented minorities in robotics research projects.

Research: Professor Olson is a highly-regarded researcher in the area of robotics, with a focus on theoretical and practical aspects of autonomous mobile robotic systems. Professor Olson investigates powerful new methods for exploring and mapping complex environments. Under his leadership, a team of students built a fleet of robots that won a major international competition. Professor Olson is a highly productive researcher, with 11 journal articles and 30 conference publications in high-quality venues. Moreover, he has established a large and thriving research lab that includes seven graduate students and is funded by current grants exceeding $3.5M from federal agencies and industry, including the Defense Advanced Research Projects Agency, the Office of Naval Research, and Ford Motor Company.

Recent and Significant Publications:

Ryan Morton and Edwin Olson, "Robust Sensor Characterization using Mixture Models: GPS Sensors," *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems*, October 2013.

Edwin Olson, Johannes Strom, Robert Goeddel, Ryan Morton, Pradeep Ranganathan and Andrew Richardson, "Exploration and Mapping with Autonomous Robot Teams," *Communications of the ACM*," March 2013.

Edwin Olson and Pratik Agarwal, "Inference on networks of mixtures for robust robot mapping," *Proceedings of Robotics: Science and Systems*, July 2012.

Edwin Olson, "On computing the average orientation of vectors and lines," *Proceedings of the IEEE International Conference on Robotics and Automation*, May 2011.

Pradeep Ranganathan and Edwin Olson, "Automated Safety Inspection of Grade Crossings," *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems*, October 2010.

Edwin Olson, "Real-Time Correlative Scan Matching, "*Proceedings of the IEEE International Conference on Robotics and Automation*, June 2009.

Service: Professor Olson has an outstanding record of service. Internally, he has served on eight committees, including the highly-demanding graduate student admissions committee. Externally, he has served in a variety of important professional roles, including numerous program committees, NSF panels, and review activities. Most recently, he has become a member of the University of Michigan Robotics Institute Steering Committee. Professor Olson has an extremely strong record of outreach, particularly to female and minority students. He is a leader and active participant in outreach events organized by the ARTSI Alliance, giving tutorials, talks, and serving as a competition judge for several ARTSI events held at major HBCUs.

External Reviewers:

Reviewer A: "I consider him to be one of the most exciting young researchers in robotics. He is an excellent lecturer, a great student mentor and a most valuable member of the community. There is no doubt he would be promoted to associate professor and awarded tenure at [my institution]."

Reviewer B: "...Ed has also worked tirelessly, in close collaboration with his colleagues, to bring in funding for robotics of Michigan and establishing long-term relationships with both federal and industrial connections, such as the TARDEC command and the automotive industry in Detroit. The amount and breadth of Ed's current grants and contracts is impressive..."

Reviewer C: "He is known by name, and by reputation, to many of the leading researchers in the field for his diverse contributions and the quality of his work...I believe he is on a very promising trajectory and is on precisely the right trajectory to become [one] of the leading players in our field..."

Reviewer D: "...I believe Dr. Olson is clearly one of the top researchers in robotics at this stage in his career. He is on an impressive growth trajectory."

Reviewer E: "I am overwhelmingly supportive of this outstanding and remarkable researcher. I believe you have a true superstar in your midst...Dr. Olson is a bright star in the robotics community..."

Reviewer F: "In terms of his CV itself, the things that stand out most for me are his steady stream of awards (winning the MAGIC competition, one of Popular Science's 2012 'Brilliant 10,' Volz thesis award runner-up, DARPA Urban Challenge finalist, DARPA Young Faculty Award, etc.); his

consistently strong teaching ratings, his very high rate of funding, and his consistently strong and prolific publication records."

Summary of Recommendation: Professor Olson has established a highly successful record of teaching, scholarly research, and service at the University of Michigan. It is with the support of the College of Engineering Executive Committee that I recommend Edwin B. Olson for promotion to associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

David C. Munson Jr.

David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

May 2014