

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Ryan M. Eustice, assistant professor of naval architecture and marine engineering, Department of Naval Architecture and Marine Engineering, assistant professor of electrical engineering and computer science, Department of Electrical Engineering and Computer Science, and assistant professor of mechanical engineering, Department of Mechanical Engineering, College of Engineering, is recommended for promotion to associate professor of naval architecture and marine engineering, with tenure, Department of Naval Architecture and Marine Engineering, associate professor of electrical engineering and computer science, without tenure, Department of Electrical and Computer Engineering, and associate professor of mechanical engineering, without tenure, Department of Mechanical Engineering, College of Engineering.

Academic Degrees:

Ph.D.	2005	Massachusetts Institute of Technology/Woods Hole Oceanographic Institution, Ocean Engineering, Cambridge, MA
B.S.	1998	Michigan State University, Mechanical Engineering, Lansing, MI

Professional Record:

2009 – Present	Assistant Professor, Department of Mechanical Engineering, University of Michigan
2007 – Present	Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan
2006 – Present	Assistant Professor, Department of Naval Architecture and Marine Engineering, University of Michigan
2006 – Present	Adjunct Assistant Professor, Department of Mechanical Engineering, Johns Hopkins University, Baltimore, MD
2005 – 2006	Postdoctoral Investigator, Department of Mechanical Engineering, Johns Hopkins University, Baltimore, MD
2005 – Present	Guest Investigator, Department of Applied Ocean Physics and Engineering, Woods Hole Oceanographic Institution, Woods Hole, MA
1999 – 2005	Graduate Research Assistant, Department of Applied Ocean Physics and Engineering, Woods Hole Oceanographic Institution, Woods Hole, MA

Summary of Evaluation:

Teaching: Professor Eustice is an enthusiastic and dedicated teacher and mentor who has worked hard to develop his teaching skills and portfolio. He has significantly revised two junior-level core technical courses in Naval Architecture and Marine Engineering's (NAME), NA320 and NA340, by including an experiential lab component to better promote student understanding and learning. He also introduced a new graduate-level robotics course "Mobile-Robotics: Methods and Algorithms," which is cross-listed with Electrical Engineering and Computer Science (EECS) that is one of the core courses for the college's new Master's in Robotics and Autonomous Vehicles program. This is a very challenging course that requires significant software development and hardware implementation, and Professor Eustice has received excellent student evaluations for this course (Q1/Q2 scores in the range of 4.8-4.9). Professor Eustice has graduated one Ph.D. student as chair and a second student as co-chair. He serves as chair for another five students and one as co-chair.

Research: Professor Eustice's research activities are extensive, varied, and substantial. He is the founder of the Perceptual Robotics Laboratory at Michigan, where he uses both theory and experiments to develop

underwater and mobile robotic platforms. His research program is focused on the problem of Simultaneous Localization and Mapping (SLAM) for robots and autonomous vehicles. Professor Eustice has made significant contributions to the field, and this has been recognized by his peers, both with the receipt of the 2006 paper of the year award by *IEEE Transactions in Robotics* and by his recent appointment as associate editor of several IEEE journals. He has recently co-founded the Car Lab (CARL) with significant support from the Ford Motor Company. He has been a productive researcher, publishing over 20 articles in refereed journals, and 40 in refereed conference proceedings. Professor Eustice has secured significant external support for his research program, attracting over \$5.8 million as the PI on numerous grants and contracts, with an additional \$142K as a co-PI. The sources of Professor Eustice's research funds include an Office of Naval Research (ONR) Young Investigator Award, the Naval Engineering Education Center (NEEC), a National Science Foundation (NSF) Young Investigator Award, and the Ford Motor Company. This wide breadth of the funding is significant, indicating that Professor Eustice's research is healthy and attracting the support of both Federal and private sources. Professor Eustice has established an international reputation for his work and that reputation continues to rise.

Recent and Significant Publications:

- A. Kim and R. M. Eustice, "Real-time visual SLAM for autonomous underwater hull inspection using visual saliency," *IEEE Transactions on Robotics*, conditionally accepted, (August 2012).
- G. Pandey, J. R. McBride and R. M. Eustice, "Ford campus vision and lidar data set," *International Journal of Robotics Research*, vol. 30, no. 13, pp. 1543–1552, Nov. 2011.
- S. E. Webster, L. L. Whitcomb and R. M. Eustice, "Preliminary results in decentralized estimation for single-beacon acoustic underwater navigation," in *Proceedings of the Robotics: Science & Systems Conference*, Zaragoza, Spain, Jun. 2010.
- R. M. Eustice, L. L. Whitcomb, H. Singh and M. Grund, "Experimental results in synchronous- clock one-way-travel-time acoustic navigation for autonomous underwater vehicles," in *Proceedings of the IEEE International Conference on Robotics and Automation*, Rome, Italy, Apr. 2007, pp. 4257–4264.
- R. M. Eustice, H. Singh and J. J. Leonard, "Exactly sparse delayed-state filters for view-based SLAM," *IEEE Transactions on Robotics*, vol. 22, no. 6, pp. 1100–1114, Dec. 2006. [King-Sun Fu Memorial Best Transactions on Robotics Paper of the Year Award of the IEEE Robotics and Automation Society]

Service: Professor Eustice has a strong record of service both to the university and to professional organizations. He has served on numerous committees in his six years at the University. At the college level, he is a member of the Faculty Search Committee for Autonomous Vehicles/Robotics, the Scholastic Standing Committee, the NAME five-Year Internal Review Committee, and the Dean's NAME Departmental Chair Search Advisory Committee. He acted as faculty co-advisor for the UM::Autonomy Wilson Center Student team. Professor Eustice is a regular reviewer for over a dozen technical journals and peer reviewed conferences, served as an area chair for the prestigious single-track "Robotics: Science and Systems" conference, associate editor for *IEEE International Conference on Robotics and Automation*, associate editor for *IEEE International Conference on Intelligent Robots and Systems*, associate editor for the *IEEE Journal of Oceanic Engineering*, and has served on NSF and NASA science panels.

External Reviewers:

Reviewer A: "Professor Eustice is an outstanding researcher in the overlapping areas of oceanic engineering and robotics... With respect to his research contributions, Professor Eustice is outstanding on the international level."

Reviewer B: "One of the enviable strengths of Prof. Eustice is his ability to couple theoretical breakthroughs with thorough, and impressive experimental results."

Reviewer C: "...I believe he is an excellent candidate whose performance would merit promotion and tenure at any top research university."

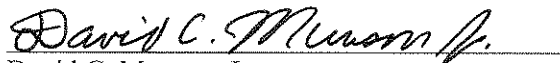
Reviewer D: "I believe you have a true superstar in your midst...He will continue to be a [sic] international leader in this vibrant and expanding field."

Reviewer E: "Very few people today possibly match Ryan's accomplishments."

Reviewer F: "His work has had and will continue to have national impact..."

Reviewer G: "...I find Ryan Eustice's research record to be excellent and his potential for continued professional growth and leadership to be outstanding."

Summary of Recommendation: Professor Eustice has drawn praise from his colleagues here at Michigan and also from our peer institutions. He is recognized for his exceptional and universally acknowledged high quality research accomplishments, dedication to teaching and student mentoring, and his university and national service. It is with the support of the College of Engineering Executive Committee that I recommend Ryan M. Eustice for promotion to associate professor of naval architecture and marine engineering, with tenure, Department of Naval Architecture and Marine Engineering, associate professor of electrical engineering and computer science, without tenure, Department of Electrical Engineering and Computer Science, and associate professor of mechanical engineering, without tenure, Department of Mechanical Engineering, College of Engineering.



David C. Munson, Jr.

Robert J. Vlasic Dean of Engineering
College of Engineering

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