PROMOTION RECOMMENDATION
The University of Michigan-Dearborn
College of Engineering and Computer Science

Samir A. Rawashdeh, assistant professor of electrical and computer engineering, Department of Electrical and Computer Engineering, College of Engineering and Computer Science, is recommended for promotion to associate professor of electrical and computer engineering, with tenure, Department of Electrical and Computer Engineering, College of Engineering and Computer Science.

Academic Degrees:

Ph.D.	2013	Electrical Engineering, University of Kentucky, Lexington, Kentucky
M.Sc.	2010	Electrical Engineering, University of Kentucky, Lexington, Kentucky
B.Sc.	2007	Electrical Engineering, University of Jordan, Amman, Jordan

Professional Record:

2014 – present	Assistant Professor, Department of Electrical and Computer Engineering University of Michigan-Dearborn
2017 – present	Adjunct Faculty Rehabilitation Sciences, College Health Sciences, University of Kentucky, Lexington, Kentucky
2013 – 2014	Post-doctoral Scholar Space Systems Laboratory, Electrical and Computer Engineering, University of Kentucky, Lexington, Kentucky

Teaching: Professor Rawashdeh has taught five different courses since joining the department in 2014, receiving an instructor evaluation of 4.76 out of 5. He has developed two new courses and substantially redesigned two additional courses and a laboratory. Currently, he is primary advisor for five Ph.D. students, two of which will graduate this year. He has advised three master's thesis and four undergraduate research projects. One of his outstanding contributions is towards the development of the graduate robotics curriculum where he developed a 600 level course and participated in the development of several 500-level courses.

Research: Professor Rawashdeh has built up an impressive robotics laboratory, to include a $250k humanoid robot and a motion capture capability. He has published 12 journal papers since coming to the university, many with his Ph.D. students. Professor Rawashdeh has received a total of 17 grants for over $1.2M in funding since 2014, including seven externally funded grants as the PI. Major funding sources include the NSF and NASA. Professor Rawashdeh is establishing himself as a recognized expert in various sensing and perception applications related to robotics. Based on his publications, number of students advised, current grant awards, and pending proposals, there is every reason to believe that Professor Rawashdeh's research will continue to grow in the future.

Recent and Significant Publications:

Aladem, Mohamed, Rawashdeh, Samir A. (2019). "A Combined Vision-Based Multiple Object Tracking and Visual Odometry System," *IEEE Sensors Journal*. Status: Accepted-Minor Revisio. (Impact factor: 3.076).

Ju, Zhongjin, Zheng, Yu, Rawashdeh, Samir A. (2019). "A Simple Robotic Fingertip Sensor Using Imaging and Shallow Neural Networks," *IEEE Sensors Journal*. DOI: 10.1109/JSEN.2019.2919492 (Impact factor: 3.076).

Jarmak, S., Brisset, J., Colwell, J., Dove, A., Maukonen, D., Rawashdeh, Samir A., Blum, J., Roe, L. (2019). "CubeSat Particle Aggregation Collision Experiment (Q-PACE): Design of a 3U CubeSat mission to investigate planetesimal formation." *Acta Astronautica* 155: 131-142. (Impact factor: 2.482).

Rawashdeh, Samir A. (2019). "Attitude Analysis of Small Satellites Using Model-Based Simulation," *International Journal of Aerospace Engineering*, vol. 2019, Article ID 3020581, 11 pages. (Impact factor: 1.131).

Aladem, Mohamed, Rawashdeh, Samir A. (2018). "Lightweight visual odometry for autonomous mobile robots." *Sensors* 18, no. 9: 2837. (Impact factor: 3.031).

Feng,Y., Zhang, C., Baek, S., Rawashdeh, Samir A., Mohammadi, A. (2018). "Autonomous Landing of a UAV on a Moving Platform Using Model Predictive Control," *Drones*, Vol. 2, No. 4. (Impact factor 3.176).

Lim, T. M., Cramer, A. M., Rawashdeh, Samir A., Lumpp, J. E. (2018). "A Modular Electrical Power System Architecture for Small Spacecraft," *IEEE Transactions on Aerospace and Electronic Systems*, Vol. 54, No. 4, pp 1832-1849. (Impact factor: 2.797, Q1 Aerospace Engineering).

Rawashdeh, Samir A., Rafeldt, Derek A., Uhl, Timothy L. (2016). "Wearable IMU for Shoulder Injury, Prevention in Overhead Sports," *Sensors*, 16(11). (Impact factor: 3.031, Q2).

Service: Professor Rawashdeh has been active on committees within the university at the college and department levels and he is active in professional societies. He has served on two college-level committees, and six department-level committees. He has also advised student clubs and achieved significant awards, to include: 2017, 2nd place, ION Autonomous Snowplow Competition, St. Paul, MN; 2016, 3rd place, AUVSI Autonomous Ground Vehicle Competition, Rochester, MI.; 2015, 3rd place, Autonomous Aerial Vehicle Competition, Dayton, OH. Professor Rawashdeh is also active in professional societies. He has served on NSF and NASA review panels, chaired conference sessions, and serves as a reviewer for multiple journal publications.

External Reviewers:
Reviewer A: "Dr. Rawashdeh and his co-workers proposed novel methodologies that incorporated neural networks solving very critical problems in autonomous driving for object tracking, and in medical field for information fusion. I can see that many other applications can benefit from these works as well. I was truly impressed with his work."

Reviewer B: "Certainly, the quantity of scholarly publication and its frequent acceptance in journals with high impact factors along with his multiple grant awards from both industry and

the NSF on the order of $700,000 as PI and $500,000 as Co-PI are gold-standard indications that Dr. Rawashdeh's research is of high quality."
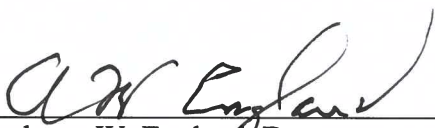
Reviewer C: "It is my opinion that Dr. Rawashdeh's professional knowledge and skills, extraordinary research ability places him in the very top position in the field of artificial intelligence, embedded systems, computer vision and robotics."

Reviewer D: "I am very delighted to say that, in my opinion, Dr. Rawashdeh is a great faculty member whose hard work and honest efforts deserve recognition through granting him tenure."

Reviewer E: "Dr. Rawashdeh is an innovative and effective researcher. His research follows a pragmatic systems approach that integrates deep system knowledge and careful performance measurement with ideas from subfields of machine learning, probability, and optimization."

<u>Summary of Recommendation:</u>
Professor Rawashdeh is an excellent faculty member in all aspects of teaching, research, and service. He has generously mentored new faculty and numerous Ph.D. students. His enthusiasm and hard work serve as an example to senior faculty. We are very pleased to recommend, with strong support of the College of Engineering and Computer Science Executive Committee, Samir A. Rawashdeh for promotion to associate professor electrical and computer engineering, with tenure, Department of Electrical and Computer Engineering, College of Engineering and Computer Science.

Anthony W. England, Dean
College of Engineering and Computer Science

Domenico Grasso, Chancellor
University of Michigan-Dearborn

May 2020