

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

Mina Raieszadeh, 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 electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, and associate professor of mechanical engineering, without tenure, Department, Mechanical Engineering, College of Engineering.

Academic Degrees:

Ph.D.	2008	Georgia Institute of Technology, Electrical and Computer Engineering, Atlanta, GA
M.S.	2005	Georgia Institute of Technology, Electrical and Computer Engineering, Atlanta, GA
B.S.	2002	Sharif University of Technology, Electrical Engineering, Tehran, Iran

Professional Record:

2013 – present	Assistant Professor, Department of Mechanical Engineering, University of Michigan
2009 – present	Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan

Summary of Evaluation:

Teaching: Professor Raieszadeh has made significant contributions to graduate research training, classroom education at the graduate and undergraduate levels and to curricular development. Since joining her department, she has developed a new graduate-level course in her research specialty that has been very well received. She has taught five different undergraduate and graduate courses ranging from 300 to 500 levels. Her record in classroom teaching has been outstanding and her teaching evaluations and comments from students from both undergraduate and graduate courses have been excellent. Her Q1/Q2 scores average approximately 4.40 and 4.50, respectively. She has gone beyond classroom teaching to involve undergraduate students in her research and helping her students with their projects. She has mentored eleven undergraduate students conducting research. Several publications have resulted from her mentoring of undergraduate research projects. She has been an excellent mentor for her Ph.D. students. To date, she has chaired eight Ph.D. dissertation committees. Of these, four have advanced to Ph.D. candidacy, one has graduated and three are expected to graduate in 2014. Professor Raieszadeh has been very successful in attracting graduate students into her research program. She is a very dedicated teacher who is committed to providing an excellent experience for her students.

Research: Professor Raieszadeh has made outstanding contributions to research in microelectromechanical systems. Her research is focused on radio frequency micro electromechanical systems (RF MEMS), and involves the investigation of materials, devices, and phenomena for communications and sensing. The research can be divided into three thrusts: integrated cognitive radio front-end modules; GaN micromechanical resonators; and AlN-based devices. Her work in GaN micromechanical resonators has been particularly successful. She is the first person to experimentally observe the acoustoelectric effect in these devices. As noted by the external reviewers, researchers from several leading academic institutions are following her into this topic. In a relatively short time, Professor Raieszadeh has established herself as a highly respected researcher both nationally and internationally.

She has made very strong contributions – both individually and collaboratively. She has demonstrated a very strong publication record that is continuing to accelerate. To date, she has published twelve articles in prestigious peer-reviewed journals, of which six describe work performed under her guidance by students at Michigan. She also has published twenty papers in highly competitive, peer-reviewed conferences with her students. Her work has been funded through a competitive peer-reviewed process at NSF, and similar processes by a number of other federal agencies (DARPA, AFOSR, NASA); she has also received direct industrial support (e.g. from Harris Corporation). Professor Raieszadeh has brought in over \$2.5M, counting only the amount of support for her research group. She has demonstrated a significant interest in technology transfer: her research effort has resulted in four pending patents with her Michigan students.

Recent and Significant Publications:

- V. J. Gokhale, O. A. Shenderova, G. E. McGuire and M. Rais-Zadeh, “Infrared absorption properties of carbon nanotube/nanodiamond based thin film coatings,” *Journal of Microelectromechanical Systems*, accepted, 2013.
- V. Thakar, Z. Wu, A. Peczalski and M. Rais-Zadeh, “Piezoelectrically transduced temperature compensated flexural-mode silicon resonators,” *Journal of Microelectromechanical Systems*, Vol. 22, No. 3, pp. 815–823, June 2013.
- V. A. Thakar, W. Pan, F. Ayazi and M. Rais-Zadeh, “Acoustically coupled thickness-mode AlN-on-Si bandpass filters, Part II: simulation and analysis,” *IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control*, pp. 2270–2277, Oct. 2012.
- Y. Shim, Z. Wu and M. Rais-Zadeh, “A multi-metal surface micromachining process for tunable RF MEMS passives,” *Journal of Microelectromechanical Systems*, vol. 21, Issue 4, pp. 867–874, August 2012.
- Y. Shim, Z. Wu and M. Rais-Zadeh, “A high-performance continuously tunable MEMS bandpass filter at 1 GHz,” *Transaction on Microwave Theory and Technique*, vol. 60, Issue 8, pp. 2439–2447, August 2012.
- Z. Wu, Y. Shim and M. Rais-Zadeh, “Miniaturized UWB filters integrated with tunable notch filters using a silicon-based integrated passive device technology,” *Transactions on Microwave Theory and Techniques*, pp. 518–527, March 2012.

Service: Professor Raieszadeh has demonstrated a strong commitment to advising and recruiting students, serving as the faculty advisor to both graduate and undergraduate students. During her summers she participates in the National Nanotechnology Infrastructure Network (NNIN) program, which hosts under-represented students from high school. She is also active at a national level in IEEE Women in Engineering whose focus is the recruitment, retention and advancement of women in the field of Electrical Engineering. She is on the technical program committees of the prominent international conferences in her field, and served as chair of the “On-Chip Passives Subgroup” of the International Technology Roadmap for Semiconductors. She is continually on NSF panels (over 10) and is a reviewer for the most prominent journals in her field. This sustained level of service and national leadership is rare at such an early stage of a career. It is clear that she has gained and is continuing to build recognition and credibility within her research community.

External Reviewers:

Reviewer A: “If asked for comparison with peers of similar qualifications in the US, I would spontaneously think of ... of Stanford (tenured as an associate professor since about two years)...”

Reviewer B: “...she is also an excellent researcher with outstanding research results. Her research achieves international visibility at the highest level evaluated by the community.”

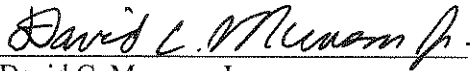
Reviewer C: "Her productivity and quality of results are that of a star faculty member. She matches and often exceeds her peers, for example in my opinion she is exceeding the productivity and impact of one of her peers at MIT who also works on MEMS resonators and GaN MEMS and who is also doing a great job."

Reviewer D: "Mina is leading the world in this important new development [of hybrid resonator technology...Prof. Mina Rais-Zadeh is already a major player in the field of RF MEMS materials, devices, and systems. Remarkably, she's also done quite a bit of work on radio front-ends..."

Reviewer E: "Prof. Rais-Zadeh has done exemplary work on micromachined passives integration...Her use of new material sets comes with a wealth of refreshing understanding on topics largely unexplored by MEMS researchers, e.g., acoustoelectric amplification."

Reviewer F: "Prof. Mina Rais-Zadeh has accomplished a great deal in the field of RF MEMS...For these outstanding performances...which proves her outstanding accomplishment with international scholaric [sic] visibility."

Summary of Recommendation: Professor Raieszadeh has made significant contributions to graduate research training, classroom education at the graduate and undergraduate levels and to curricular development. She is a dedicated teacher committed to providing an excellent education for her students. She has established herself as a highly respected researcher both nationally and internationally. Her service contributions exceed what is typically expected of a junior faculty member at this point in her career. It is with the support of the College of Engineering Executive Committee that I recommend Mina Raieszadeh for promotion to associate professor of electrical engineering and computer science, with 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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