

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

Zeeshan H. Syed, 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. 2009 Massachusetts Institute of Technology and Harvard Medical School, Computer Science and Biomedical Engineering, Cambridge, MA
M.Eng. 2003 Massachusetts Institute of Technology, Electrical Engineering and Computer Science, Cambridge, MA
S.B. 2003 Massachusetts Institute of Technology, Computer Science and Engineering, Cambridge, MA

Professional Record:

- 2012 - 2015 Member of Founding Team, Google/Google[X] Life Sciences, Mountain View, CA
2010 - present Faculty Associate, Depression Center, University of Michigan
2010 - 2012 Faculty Associate, Center for Global Health, University of Michigan
2009 - present Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan
2009 - present Director, Computational Biomarker Discovery and Clinical Inference Group, University of Michigan
2009 - present Faculty Associate, Center for Computational Medicine and Bioinformatics, University of Michigan

Summary of Evaluation:

Teaching: Professor Syed has been a successful and inspirational instructor and mentor. He has been an effective teacher of our core course on algorithms and data structures (EECS 281), and has initiated a new graduate-level course on data science for medicine (EECS 598). With support from NSF, DARPA, the American Heart Association, and the National Institutes of Health, Professor Syed has established a vibrant research group and has already graduated two Ph.D. students. He has also been active in undergraduate research.

Research: Professor Syed is a pioneer in the application of computational techniques to healthcare. His exceptional publication record includes two papers in *Science Translational Medicine*, one as a lead author, and another with one of his graduate students as lead author. Professor Syed positions the University of Michigan at the forefront of a discipline that promises to transform healthcare in the near future. His research contributions have been recognized by a

NSF CAREER Award, a DARPA Young Faculty Award, an American Heart Association Scientist Development Award, and a Google Platinum Innovation Award.

Recent and Significant Publications:

- Van Esbroeck, A., Smith, L., Syed, Z., Singh, S., Karam, Z., “Multi-task seizure detection: addressing inter-patient and intra-patient variations in seizure morphologies,” *Machine Learning*, 2015, to appear (13 pages).
- Spadafore, M., Syed, Z., Rubinfeld, I., “Automatic detection of benzodiazepine dosage in ICU patients through a computational analysis of electrocardiographic data,” *American Medical Informatics Association Annual Symposium*, 2015, (9 pages).
- Liu, Y., Syed, Z., Scirica, B., Morrow, D., Guttag, J., Stultz, C., “ECG morphological variability in beat-space for risk stratification after acute coronary syndrome,” *Journal of the American Heart Association*, 2014, vol. 3, e000981, (10 pages).
- Chia, C., Syed, Z., “Scalable noise mining in long-term electrocardiographic time-series to predict death following heart attacks,” *ACM Conference on Knowledge Discovery and Data Mining (SIGKDD)*, 2014, (10 pages).
- Van Esbroeck, A., Singh, S., Rubinfeld, I., Syed, Z., “Evaluating trauma patients: addressing missing covariates using joint optimization,” *Association for the Advancement of Artificial Intelligence Conference*, 2014, (7 pages).
- Lee, G., Gurm, H., Syed, Z., “Predicting complications of percutaneous coronary intervention using a novel support vector method,” *Journal of the American Medical Informatics Association*, 2013, vol.20, pp. 778-786, (9 pages).
- Chia, C., Rubinfeld, I., Scirica, B., McMillan, S., Gurm, H., Syed, Z., “Looking beyond historical patient outcomes to improve clinical models,” *Science Translational Medicine (Science/AAAS)*, 2012, vol. 4, 4131ra49, (11 pages).
- Syed, Z., Stultz, C., Scirica, B., Guttag, J., “Computationally generated cardiac biomarkers for risk stratification after acute coronary syndrome,” *Science Translational Medicine (Science/AAAS)*, 2011, vol. 3, 102ra95, (10 pages).

Service: Professor Syed’s service has contributed to the Computer Science and Engineering Division’s (CSE) strategic growth in the area of computational healthcare. He has strengthened ties between CSE and the Medical School, holding positions as faculty associate with the UM Centers for Computational Medicine and Bioinformatics, Global Health, and Depression. He has played an instrumental role in identifying and recruiting junior faculty in the area of computational healthcare. Externally, he has served on the program committee of the IEEE ICDM Workshop on Biological Data Mining and Applications in Healthcare for five consecutive years. Moreover, he has been invited to serve as a panelist on a variety of workshops sponsored by the National Science Foundation and the Computing Research Association.

External Reviewers:

Reviewer A: “His work not only generates needed and practical solutions in the medical field but also basic research in the field of machine learning. In my view he is one of the top three junior people working at this juncture, if not the best.”

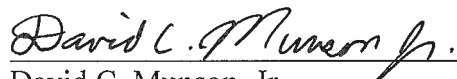
Reviewer B: "I am certain that Prof. Syed would be deserving of tenure at any of the finest major research universities in the world . . . I believe that the candidate has a superb and admirable track record, and that he is likely to be a research star at Michigan . . ."

Reviewer C: "Zeeshan has done outstanding work in computational cardiology, neurology, and surgical care. He has compiled superb records of publication, of research funding, and of invention . . . He's a terrific teacher and speaker . . . You are extremely fortunate to have him."

Reviewer D: "Zeeshan Syed is currently the most rigorous thinker in his field, and his work has consistently been far more sophisticated than that of his peers. Zeeshan has, therefore, developed a national reputation for excellence in this regard. Overall, he is an exceptional scholar who would clearly rise above the bar for tenure at [my institution]."

Reviewer E: "Zeeshan's research ability is shown by the skillful interweaving of insights into what makes important clinical problems and the technical skill and creativity to develop new methods that are suitable to address these problems. His CV shows a remarkably productive record of publications . . . I believe that Zeeshan Syed is very well qualified for promotion to Associate Professor and tenure."

Summary of Recommendation: Professor Syed is an exceptional scholar conducting pioneering research in the field of computational healthcare. I recommend Zeeshan H. Syed for promotion to associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science.



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

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