

PROMOTION RECOMMENDATION
The University of Michigan – Flint
College of Arts and Sciences
Department of Computer Science, Engineering, and Physics

Halil Bisgin, assistant professor of computer science, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences, is recommended for promotion to associate professor of computer science, with tenure, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences.

Academic Degrees:

Ph.D.	2012	University of Arkansas at Little Rock, Little Rock, Arkansas
M.S.	2008	Istanbul Technical University, Istanbul, Turkey
B.S.	2003	Koc University, Istanbul, Turkey

Professional Record:

2015-Present Assistant Professor, University of Michigan-Flint, Michigan

Summary of Evaluation:

Teaching: Since his arrival in 2015, Professor Bisgin has taught eight distinct courses ranging from Computer Science 175 (Problem Solving and Programming in C++) to Computer Science 392/592 (Bioinformatics), as well as independent study and thesis coursework. He developed two new courses for the program and he has supervised five master's student theses and served as a reader for three additional theses. In addition, he has mentored 11 undergraduate students, with whom he has published two peer-reviewed journal articles, one conference paper, and presented three posters, and he mentored ten graduate students with whom he has had two poster presentations and published two peer-reviewed conference papers.

His teaching philosophy relies on the belief in a growth mindset and that student can learn best when provided a caring attitude and individualized learning experiences. He utilizes real-world examples, research projects, peer interactions, and assessments to motivate students and facilitate their learning. His attention to his students, whether in the classroom or on one-to-one basis (through graduate and undergraduate student research mentoring) shows the importance he attaches to teaching and educating junior scholars in the profession. He has also worked on curriculum development in the areas of a health information systems minor, a M.S. in data analytics program proposal, and a new interdisciplinary data analytics undergraduate degree.

Student evaluations have an average median score of 4.54 on the question, "Overall, this was an excellent course" and 4.77 on the question "Overall the instructor was an excellent teacher." Student evaluations suggest he is a passionate instructor who works to ensure each student's success and emphasize his organization, approachability, and enthusiasm. Across his multiple peer observations, colleagues frequently commended Professor Bisgin's humor, his knowing his students by name, the various ways he makes students comfortable participating in class, and his repetition of important concepts. Overall, his peer evaluations demonstrate an organized, challenging, interactive learning environment focused on student success. He participates in assessment at both the undergraduate and

graduate student levels, actively advises and mentors many students, and has sought out repeated opportunities for professional development of his teaching practice. For all of these efforts, Professor Bisgin was recognized with the 2019 Dr. Lois Matz Rosen Junior Faculty Excellence in Teaching Award as well as a Provost Teaching Innovation Prize.

Research: Professor Bisgin's research utilizing Artificial Intelligence (AI)/Machine Learning (ML) methods has been applied to interdisciplinary problems in highly diverse fields from Biology and Security to Public Health and Social Computing. His collaborations have led to published findings designed to reduce drug-drug interactions, to make our food supply safer by detecting beetle contamination, and to build prediction models for various diseases. In the area of security analysis, Professor Bisgin and his colleagues have worked to develop a prediction framework to identify malicious apps on android devices. In the areas of social computing, Professor Bisgin and his colleagues have examined blame and responsibility through social media and are examining of the role of race and racism in the Flint Water crisis.

He has published eight papers in top-tier journals including: *PLoS One*, *Scientific Reports* and *BMC Bioinformatics*; six conference proceedings in highly rated conferences including two IEEE International Conferences; and four edited books or special issues. Six of his papers have been co-authored with seven students. He also has five additional journal articles and a book chapter under review, notably in additional high-quality journals.

Professor Bisgin has received internal funding for seven projects totaling more than \$85,000. Several external reviewers noted that Professor Bisgin is well-positioned to seek federal funding for projects as he narrows and intensifies his focus on specific applications of machine learning techniques to a specific field of study as he has already demonstrated the capacity to work across multiple disciplines. He has twice been recognized for his work by the US Food and Drug Administration (FDA) for Species Identification of Food Contaminating Beetles and Mining Patient Narratives in Clinical Trials. Professor Bisgin has been prolific in publishing since his graduate school days, amassing a total of 39 peer reviewed journal publications, conference proceedings, books chapters, and edited volumes in the past ten years. His external reviewers consistently attest to the high quality and broad impact of his scholarship.

Recent and Significant Publications:

Ray O. Bahado-Singh, Ali Yilmaz, Halil Bisgin, Onur Turkoglu, Eric Sherman, Andrew Mrazik, Stewart F. Graham, Anthony Odibo. "Artificial Intelligence and the analysis of multi-platform Metabolomics data for the detection of Intrauterine Growth Restriction." *PloS ONE* 14, no. 4 (2019).

Halil Bisgin, Hasan Arslan, and Yusuf Korkmaz, "Analyzing the Dabiq Magazine: The Language and the Propaganda Structure of ISIS." *International Conference on Social Computing, Behavioral-Cultural Modeling and Prediction and Behavior Representation in Modeling and Simulation*, pp. 1-11. Springer, Cham, 2019.

Talha Oz, Rachael Havens, and Halil Bisgin. "Assessment of Blame and Responsibility Through Social Media in Disaster Recovery in the Case of #FlintWaterCrisis," *Frontiers in Communication-Disaster Communications* 3 (2018):45

Service: Professor Bisgin's departmental service includes helping to coordinate a high school programming competition, several scholarship committees, attending admissions and recruitment events, and service as the data science club advisor. At the college level, he has served on the CAS Nominating Committee (and chaired it), the CAS Strategic Plan Implementation Committee on General Education, and the LEO Major Review Committee among others. At the university, he served on the University Nominating Committee. Professionally, Professor Bisgin has provided extensive service to the international research community, far beyond what is expected for promotion to associate professor. He has served as a reviewer for 18 various journals in the fields of computer science, bioinformatics, and disaster communications, providing 35 reviews over the past five years. As a track and program co-chair for the SBP-BRiMS conferences from 2017-2020, Professor Bisgin oversaw the review process for 339 submissions, provided meta-reviews as needed, and made final decisions on program submissions.

External Reviewers:

Reviewer (A): "These papers have had a significant influence on drug repositioning, and applicability of prediction models to the problem of drug adverse effects."

Reviewer (B): "Overall, I would consider Dr. Bisgin's accomplishments as well rounded and nothing short of outstanding."

Reviewer (C): "In terms of 'quality' his publication record is significantly better compared to those of most of his peers. His papers have received more than 500 citations according to google scholar. ... PLOS ONE and Scientific Reports (of Nature) for example are top journals with high impact factors. He has multiple papers in each of these journals."

Reviewer (D): "Dr. Bisgin is a prolific researcher. ... I am particularly impressed by the reputation (IEEE, Elsevier, Springer, etc.) and impact factors (1.45–5.52) of the journals in which Dr. Bisgin published his work."

Reviewer (E): "The published journal papers are well cited (the highest one was 17 citations in 2 years); thus, I believe there are impacts of his research publications."

Reviewer (F): "... it is clear that he can apply cutting-edge machine learning techniques to drug-related data."

Reviewer (G): "His study is a major contribution to online social media analysis where different online social networking sites were methodologically mined. ... I found all Dr. Bisgin's research of very high quality and I commend his devotion to the interdisciplinary research."

Summary of Recommendation:

Professor Bisgin is a highly engaged and effective teacher who utilizes a wide variety of active learning and peer interaction methods to facilitate student success. He has an extremely diverse and interdisciplinary record of research collaborations applying machine learning to fields including Biology, Security, Public Health, and Social Computing. Approximately 40 % of Dr. Bisgin's recent publications are co-authored with students, attesting to his record of successfully mentoring student research. He also has an exemplary record of impactful service to his department, college, and profession. It is with the full support of the College of Arts and Sciences Executive Committee that I recommend Halil Bisgin for promotion to associate professor of computer science, with tenure, Department of Computer Science, Engineering, and Physics.

Recommended by:



Susan Gano-Phillips, Dean
College of Arts and Sciences

Recommendation endorsed by:



Sonja Feist-Price, Provost and
Vice Chancellor for Academic Affairs



Debasish Dutta, Chancellor
University of Michigan – Flint

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