

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

Birhanu Eshete, assistant professor of computer and information science, Department of Computer and Information Science, College of Engineering and Computer Science, is recommended for promotion to associate professor of computer and information science, with tenure, Department of Computer and Information Science, College of Engineering and Computer Science.

Academic Degrees:

Ph.D.	2013	Computer Science, University of Trento, Trento, Italy
M.S.	2007	Computer Science, Addis Ababa University, Addis Ababa, Ethiopia
B.S.	2003	Computer Science, Addis Ababa University, Addis Ababa, Ethiopia

Professional Record:

2018-present	Assistant Professor, University of Michigan-Dearborn, Dearborn, MI
2014-2018	Post-doctoral Researcher, University of Illinois at Chicago, Chicago, IL
2009-2013	Research Assistant, Fondazione Bruno Kessler, Trento, Italy
2006-2006	Main Research Engineer, United Nations Economic Commission for Africa, Addis Ababa, Ethiopia
2004-2006	Junior Programmer, Ethiopian Telecom, Addis Ababa, Ethiopia

Summary of Evaluation:

Teaching: Professor Eshete is rated excellent in teaching. He is an excellent and dedicated educator who has demonstrated a strong passion in education. He taught various cybersecurity courses and core computer and information science (CIS) courses at both undergraduate and graduate levels. He delivered high quality courses and received very good teaching evaluations from students. Outside the classroom, he founded and continues to mentor the UM-Dearborn BlueBytes Cybersecurity Club, which is a big success in preparing undergraduate cybersecurity majors to face on-the-job challenges while on campus. His K-12 focused outreach activities were very impressive because they leverage Professor Eshete's expertise to inspire the next generation of cybersecurity professionals with early exposure to cutting-edge research with important societal impact. In addition, Professor Eshete is enthusiastic about curriculum development. Besides developing two new timely courses on trustworthy artificial intelligence, as the chair of the Master of Science (MS) in cybersecurity and information assurance (CIA) program committee, he is instrumental in continuously revamping the curriculum to align with the current development of the field. He also has a very impressive mentoring record, supervising students at all levels.

Research: Professor Eshete is rated excellent in research. He is an outstanding researcher conducting impactful research in cybersecurity. He has won high respect from his peers in the field. He consistently published high quality papers in top conferences including Usenix Security Symposia, Association for Computing Machinery Conference on Computer and Communications Security, Institute of Electrical and Electronics Engineers (IEEE) Symposium on Security and Privacy (S&P), Internet Society Network and Distributed System Security Symposium, Association for Computing Machinery (ACM) Privacy Enhancing Technologies Symposium, Annual Computer Security Applications Conference, IEEE/International Federation for Information Processing

Conference on Dependable Systems and Networks, and ACM World Wide Web Conference in the field. As mentioned by the prominent external reviewers, top conferences in computer science are highly selective, and papers that appear in them are widely read and typically highly impactful. Being able to publish consistently in such top conferences is the best indicator of successful researchers that are helping define their fields. Furthermore, Professor Eshete won the 2018 Usenix Security Distinguished Paper Award, was a featured speaker at the well-known Usenix Enigma Conference, and published a paper in the highly reputable *Science Magazine*, as well as featured in multiple media outlets. He secured three highly competitive National Science Foundation (NSF) grants for his research. Most notably, he received the prestigious NSF Faculty Early Career Development Program (CAREER) award. He founded a research lab where he supervised a group of Ph.D., M.S., and Bachelor of Science students and actively published papers with them. His Ford Faculty Summer Sabbatical award and a United States patent showcase the relevance of his research to industries.

Recent and Significant Publications:

- Amich, A., Eshete, B., Yegneswaran, V., Hoang, N.P. “DeResistor: Toward Detection-Resistant Probing for Evasion of Internet Censorship.” In Proc. of 32nd Usenix Security Symp. (SEC’23).
- Amich, A., Eshete, B. “EG-Booster: Explanation-Guided Booster for ML Evasion Attacks.” In Proc. of 12th ACM Conf. on Data and Appl. Security and Privacy (ACM CODASPY 22). h-index: NA.
- Eshete, B. “Making Machine Learning Trustworthy.” *Science*, Vol. 373, Issue. 6556, pp. 743-744, American Assoc. for the Advance. of Sci. (AAAS), 2021.
- Milajerdi, S. M., Eshete, B., Gjomemo, R., Venkatakrishnan, V.N. “Poirot: Aligning Attack Behavior with Kernel Audit Records for Cyber Threat Hunting.” In Proc. of 26th ACM Conf. on Comp. and Comm. Sec. (ACM CCS’19).
- Milajerdi, S. M., Gjomemo, R., Eshete, B., Sekar, R., Venkatakrishnan, V.N. “HOLMES: Real-time APT Detection through Correlation of Suspicious Information Flows.” In Proc. of 40th IEEE Symp. on Sec. and Priv. (IEEE S&P’19).

Service: Professor Eshete is rated excellent in service. He is very active in both university and professional communities. At the university, he served on committees at all levels (department, college, and campus), including the time-consuming campus Dearborn Discovery Core Subcommittee and faculty senate. Due to Professor Eshete’s passion and experience for organizing student activities such as cybersecurity competitions, student team coaching, and Ph.D. student research seminars, he served as the chair of the student organizations, alumni, and outreach committee in the department. Professor Eshete’s expertise in cybersecurity, led him to serve as the chair for the MS in the CIA program. These services showcase his leadership and dedication at the university. In the professional community, he served as a co-chair of diversity, equity, and inclusion for a top conference (IEEE S&P 2022) as well as program committee members for highly reputable conferences in his field. He also actively reviewed papers for top journals and conferences. These professional services demonstrate that he has won a high reputation in his field.

External Reviewers:

Reviewer A: “His record reflects an excellent researcher, working on important problems, with a consistent track record of impactful results published in high impact venues ... Prof. Eshete has regularly been invited to serve on the technical program committees of excellent conferences, which is a testament to his high standing in the field.”

Reviewer B: “Professor Eshete has established a strong research program and trajectory that is supported by highly competitive external grants, including the prestigious NSF CAREER award ... The high impact of his scholarly work is evident in his outstanding publication record. He consistently publishes in top-tier security and privacy venues ... I firmly believe Professor Eshetes’ [sic] highly impactful research has created a foundation for next-generation techniques and tools in trustworthy ML, cybercrime analysis, and cyber threat intelligence.”

Reviewer C: “From my perspective, he stands out as one of the foremost researchers in the field of computer security ... I have every confidence that his contributions are far superior to those of researchers and professors with comparable training and education. He has already made fundamental contributions to our field and will continue to do so.”

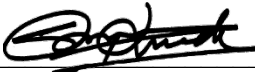
Reviewer D: “He is constantly publishing his works in top conferences and journals such as Usenix Security, ACM CCS, NDSS, IEEE S&P etc ... I am also very much impressed by Professor Eshete’s funding record ... Especially, getting the competitive NSF CAREER award is a great accomplishment.”

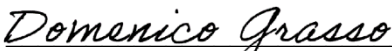
Reviewer E: “From his publication record and citations, it is clear that Professor Eshete is conducting high-quality and high-impact research in these fields. I do appreciate the level of productivity and the quality of his work ... I would conclude that Professor Eshete has built a very productive, independent, and sustainable research program, which will lead to his future success as a tenured faculty.”

Reviewer F: “By traditional measures of scholarly activity – publications – Professor Eshete has an excellent record, including multiple publications in the top venues in our field ... Professor Eshete’s professional service has been stellar. His impactful works earn him the invitations to participate in the technical program committees of highly competitive security conferences.”

Reviewer G: “Professor Eshete’s publication record demonstrates solid and sustained research output at these prestigious venues ... I am confident that Professor Eshete’s current and future research efforts will continue to generate highly visible technical results and broader impacts.”

Summary of Recommendation: Professor Eshete’s accomplishments in all the areas of research, teaching, and service are truly excellent. We are very pleased to recommend, with strong support of the College of Engineering and Computer Science Executive Committee, Birhanu Eshete for promotion to associate professor of computer and information science, with tenure, Department of Computer and Information Science, College of Engineering and Computer Science.


Ghassan Kridli, Dean
College of Engineering and Computer Science


Domenico Grasso, Chancellor
University of Michigan-Dearborn

May 2024