

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

Mark Allison, 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.	2014	Florida International University, Computer Science, Miami, FL
M.S.	1993	City College of New York, Information Systems, New York, NY
B.S.	1990	City College of New York, Computer Science, New York, NY

Professional Record:

2014-Present	Assistant Professor of Computer Science, University of Michigan-Flint, Flint, MI
2013-2014	Program Director – Software Engineering, Keiser University, Ft. Lauderdale, FL
2005-2013	University Department Chair – Information Technology, Keiser University, Ft. Lauderdale, FL

Summary of Evaluation:

Teaching: In the field of computer science where the pace of change is so rapid, Professor Allison has developed a pedagogy that emphasizes computational thinking built on a foundation of declarative knowledge designed to facilitate problem-solving as opposed to retrieval of facts. Since his arrival in the fall of 2014, Professor Allison has taught eight different classes, ranging from intermediate undergraduate classes to graduate level courses. Of these eight classes, he has developed four new courses – two graduate courses in “Cloud Computing” and “Software Testing,” and two upper division courses, “00 Application Programming” and “Web and Mobile Development.” Professor Allison’s Student Evaluations of Teaching provide one piece of evidence regarding his teaching effectiveness. The averages for the questions “Overall, this was an excellent course,” “Overall, the instructor was an excellent teacher,” and “I learned a great deal in this course,” were 4.41, 4.48, and 4.37, respectively. In addition to his work in course and program development, Professor Allison advises approximate a dozen graduate students a year, and also serves as the faculty advisor for the university’s student chapter of the ACM (Association of Computing Machinery). Professor Allison contributes to the assessment of the graduate courses he has developed, coordinates the assessment process for the Bachelors of Science program in computer science, and assists the department in the review of its annual assessment reports – a role he is exceptionally qualified for as the chair of the university’s Academic Assessment Committee.

Research: Professor Allison is a computer scientist whose research utilizes software engineering to solve a variety of systems problems such as Cloud computing, energy management within a micro-grid, and pedagogical challenges associated with a flipped classroom and other active learning strategies. With two peer-reviewed journal articles, fourteen peer-reviewed conference papers, and one invited presentation since arriving at the University of Michigan-Flint, Professor Allison has established a strong record of scholarship. The venues for the dissemination of Professor Allison’s scholarship include conferences sponsored by the ACM and the Institute of Electrical and Electronics Engineers (IEEE). Two of his conference papers were recognized with a “Best Paper” or “Best Presentation” award. Equally impressive is the fact that five of Professor Allison’s papers had been co-authored with students. In the area of securing grants, Professor Allison has received over \$200k in internal and external grants, the largest grant being a \$150k grant from Google to construct a software infrastructure to aid residents during the Flint Water Crisis.

What is particularly noteworthy in this grant is that it combines Professor Allison's scholarly expertise with his commitment to serving his local community. Professor Allison plans to develop models of computation and communication for the concurrent control of cyber-physical systems.

Recent and Significant Scholarly Activity:

Allison, M. Robinson, M (University of Texas – Tyler) *An Autonomic Model-Driven Architecture to Support Adaptation in Swarm Behavior*. IEEE Future of Information and Communication Conference (FICC 2019), San Francisco

Allison, M. Zhang C. (Google), Jones M (2018) *Engineering Crisis Response Software: Lessons Learnt from a Flint Water Crisis App Platform*. IEEE Global Humanitarian Technology Conference (GHTC 2018) San Jose, California

Morris, K., Allison, M., Wei, J., Costa, F., Clarke, P. (2015) *An Adaptive Middleware Design to Support the Dynamic Interpretation of Domain-Specific Models*, *The Journal of Information and Software Technology – Elsevier*.

Service: As a faculty member who believes that it is his responsibility to contribute to the betterment of the university's internal and external communities, Professor Allison has made significant service contributions at all levels, from his program to his professional community. At the department level, Professor Allison has served on the Professional Development Committee as well as participating in several faculty searches. For the college, Professor Allison has served as an external member of the Biology department's search committee and was a member of the Murchie Science Building working group. Professor Allison has also served as the secretary of the Spring Interim Committee, as well as being a member of the college's Curriculum Committee. Professor Allison has also served the university in numerous capacities. He has been a member of the Climate Survey Committee, the search committee for the Dean of Students, and has served on the Office of Extended Learning Advisory Committee. Professor Allison has also demonstrated leadership in his university service by being elected to the Academic Assessment Committee in 2016, becoming chair the following year, and becoming the provost's appointed member in 2019. Given his work in the area of assessment of student learning, Professor Allison also was a contributing member to the Criterion Four Subcommittee for Higher Learning Commission Re-accreditation, "Teaching and Learning: Evaluation and Improvement," that helped prepare this portion of the university's assurance argument. Regarding his service to the university's students, Professor Allison is the faculty advisor for UM-Flint's chapters of the ACM club and the Upsilon Pi Epsilon honor society. Professor Allison has also served his local and professional communities. His scholarly activity to develop a software infrastructure to aid residents during the Flint Water Crisis directly served the residents of Flint. He continues to serve his local community by developing a mobile application to promote healthy eating. Finally, Professor Allison contributes to his professional community by serving as a peer reviewer for conferences and journals, the National Science Foundation, the U.S. Department of Energy's Advanced Research Projects Agency, and the Canadian Foundation for Innovation.

External Reviewers:

Reviewer (A): "In summary, the research topics that Dr. Allison has focused on, the quality of the publications, his work with both graduate and undergraduate students, and the selective and competitive venues at which his research has been published both at UM-Flint and prior to that speaks highly of his research scholarship."

Reviewer (B): "Domain-Specific Modeling is one of the most important recent trends in SE research. This research supports direct execution of domain models. Various aspects of this work are described in Allison's journal article and in conference publications... Conference article f. [HASE 2015] is particularly interesting in that it includes a formal specification in Alloy."

Reviewer (C): “I value the consistency of his productivity in publication. I also value the fact that five of his conference publications are co-authored by students at UM-Flint. One such paper was recognized with the conference’s best paper award. This recognition attests to the quality of his publications and research.”

Reviewer (D): “The papers that Dr. Allison has authored, along with his fellow researchers as well as students, are generally of high quality. I was particularly impressed by the paper titled ‘Engineering Crisis Response Software: Lessons Learnt from a Flint Water Crisis App Platform’, because of the immediate relevance that this work has on the local context of the University of Michigan-Flint.”

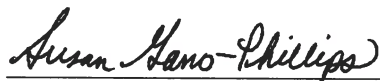
Reviewer (E): “The candidate’s scholarly activities are impressive and have resulted in two highly competitive, peer-reviewed journal articles, fifteen conference publications and/or presentations at highly competitive venues.”

Reviewer (F): “Dr. Allison has published in high-impact journals and IEEE Conference proceedings (a gold standard in Computer Science and Engineering disciplines)... Two of his research papers have been awarded the Best Paper and Best Presentation awards at international conferences. This exemplifies his scholarly contribution to the community of computing researchers.”

Summary of Recommendation:

Professor Allison is a computer scientist whose research utilizes software engineering to solve a variety of systems problems such as Cloud computing, energy management and online pedagogy. With two peer-reviewed journal articles and fourteen peer-reviewed conference papers, Professor Allison has established a strong record of scholarship. As a teacher, he has developed a pedagogy that emphasizes computational thinking built on a foundation of declarative knowledge that is designed to facilitate problem-solving as opposed to the retrieval of facts. Accordingly, his portfolio contains multiple indicators of teaching effectiveness. Professor Allison has a strong record of service that is highlighted by his work in the area of student learning assessment and his project that created a software infrastructure to aid in addressing the Flint Water Crisis. I recommend Mark Allison for promotion to associate professor of computer science, with tenure, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences.

Recommended by:



Susan Gano-Phillips, Dean
College of Arts and Sciences

Recommendation endorsed by:



Keith Moreland, Interim Provost and
Vice Chancellor for Academic Affairs



Debasish Dutta, Chancellor
University of Michigan-Flint

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