Approved by the Regents
May 17, 2018

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

Marouane Kessentini, 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.	2012	Computer Science, University of Montreal, Canada
M.Sc.	2008	Software Engineering, INTRETS-Paris (France) & University of Tunis (Tunisia)
B.Sc.	2006	Software Engineering, University of Tunis, Tunisia

Professional Record:

2013 – present	Assistant Professor, University of Michigan - Dearborn
2012 – 2013	Assistant Professor, Missouri University of Science and Technology

Summary of Evaluation:

Teaching: Professor Kessentini is rated excellent in teaching. He is an excellent educator and is popular among the students. Since he joined UM-Dearborn, he has taught five different courses at both undergraduate and graduate levels and developed three new courses. His student teaching evaluations placed him among the top ones in the department. He invited speakers from local companies in Michigan (including IBM, Ford, and others) to present and discuss interesting topics/issues related to his graduate course on software quality assurance. He integrated active learning techniques into a second undergraduate software engineering course. Beyond the classroom instruction, he has also conducted funded educational research (by NSF and university internal grants) to bring innovative methodologies into teaching and learning. In particular, he investigated methodologies to help special needs students learn software development. He is also an outstanding advisor and supervised a long list of Ph.D. and M.Sc. students. Due to his excellent teaching performance and related innovative education activities, he received the UM-Dearborn Distinguished Teaching Award in 2016.

Research: Professor Kessentini is rated excellent in research. He is one of the top researchers working on improving the current generation of refactoring tools. He is also a well-recognized leader in the field of Search Based Software Engineering. He has an exceptionally strong track record of publications. He published 95 referred papers, including 32 journal papers (an average of eight per year) and 39 conference papers (an average of 9.75 per year) in the past four years while at UM-Dearborn. He is ranked among the top faculty/researchers of the UM system in terms of indexed publications in CS and CE during the last four years (according to Scopus). Many of his papers appeared in the top journals (such as *ACM* and *IEEE transactions*) and leading conferences (such as ASE, FSE, ICSM, and MODELS) in his research areas. He has six

Journal First papers selected by four top journals and received three best paper awards and four best paper runners-up from conferences. He created significant impact on his related research domain. He was ranked first as the most active researcher in the fields of search-based refactoring and Java anti-pattern detection by two recently published surveys. He has secured substantial research funding from both federal and industrial funding sources including NSF, Ford, and Sema. He has supervised 13 Ph.D. students and 26 M.Sc. students since joining the university, which positions him as one of the most productive graduate supervisors at UM-Dearborn. He was invited for 18 presentations after joining UM-Dearborn.

Recent and Significant Publications:

Fleck, M., Troya, J., Kessentini, et al. Model Transformation as a Many-Objective Optimization Problem. *IEEE Transactions on Software Engineering* (TSE), Vol. 43, No. 11, pp. 1009-1032, 2017. Impact Factor: 3.89.

McBurney, P. W., Jiang, S., Kessentini, M., et al. Towards Prioritizing Documentation Effort. *IEEE Transactions on Software Engineering* (TSE), DOI: 10.1109/TSE.2017.2716950, 2017. Impact Factor: 3.89.

Ali, O., Kessentini, M., Sahraoui, H., and Inoue, K. Multi-Criteria Software Refactoring: An Industrial Case Study. *ACM Transactions on Software Engineering and Methodology* (TOSEM), Vol. 25, No. 3, Article 23, 53 pages, 2016. Impact factor 3.95.

Usman, M., Kessentini, M., Maxim, B., and Deb., K., Multi-Objective Code-Smells Detection using Good and Bad Design Examples. *Software Quality Journal*, First online: 15 February 2016 doi:10.1007/s11219-016-9309-7. Impact factor 1.14.

Ouni, A., Kessentini, M., Inoue, K. and Cinnide, M., Search-Based Web Services Anti-patterns Detection. *IEEE Transactions on Services Computing*, Vol. 10, No. 4, pp. 603-617, 2015. Impact Factor: 3.04.

Service: Professor Kessentini is rated excellent in service. He is very active in both the university and the professional communities. At the university, he has undertaken significant assignments as a member of a number of committees at all levels, including the UM-Dearborn teaching award selection committee, the CECS research committee, the CECS Ph.D. implementation committee, the CIS chair search committee, the CIS research committee, the CIS seminar coordinator, and the software engineering graduate committee. These committees held many meetings and produced significant work products. In particular, as the CIS seminar coordinator, he organized a series of well-attended research seminars with distinguished speakers from both academia and industry. For the professional community, he is a leader in software engineering on the international stage, organizing several conferences focused on refactoring and software evolution. He has served as the PC chair for nine conferences, general chair for four conferences, associate editor for five journals and guest editor for seven journals.

External Reviewers:

Reviewer A: "He has been, since then, a very active colleague who is increasingly visible and involved as a leading scientist in his research community… He is, with his group, clearly leading the research community in this important application area of evolutionary computing… His publication track record is clearly outstanding, both in terms of quality and quantity… Most

particularly, his work using multi-objective search optimization to guide refactoring has been widely noticed and is increasingly being cited."

Reviewer B: "Marouane is one of the top researchers working on improving the current generation of refactoring tools… Marouane has made a tremendous contribution in the field of refactoring… What really sets Marouane apart from other researchers is his productivity and breadth of interests… Not only that he is regarded by the refactoring community as the leader in the field of Search-based Software Refactoring, but he is appreciated more broadly by the general software engineering research community… I am impressed with the amount of service contributions (reviewing, associate journal editor) which is beyond somebody expects from an assistant [professor]… Marouane's research accomplishments make him a pioneer in the refactoring community."

Reviewer C: "Dr. Kessentini is a well-established leader in the field of Search Based Software Engineering (SBSE)… The area is growing extremely rapidly, and Dr. Kessentini is undoubtedly one of the international leaders in the area, and one of the leading scholars and researchers of his generation… Evidence for this comes from the large number of recent papers in first tier venues on this topic, and on clear evidence for his high esteem and profile in the international community… Dr. Kessentini is highly collaborative, and has demonstrated a strong ability to draw in world leading scholars into collaborative projects and arrangements."

Reviewer D: "Dr. Kessentini has shown a growing and strong publication record. He continues to publish in Software Engineering's highest impact journals… He has established his group as the leading (most productive and one of the highest cited groups) in the area of search-based refactoring… These services are indicators of the high esteem and respect that his colleagues place on him especially given his current position as an assistant professor… Dr. Kessentini has shown an exceptionally strong research record that has been recognized by his peers (best papers, keynotes, and journal invites)."

Reviewer E: "In particular, Dr. Kessentini has developed foundations as well as tool support for improving the quality of software systems and studied the outcomes in empirical studies… Dr. Kessentini's contribution to the highly competitive research field of software engineering in general is substantial and has been internationally widely acknowledged… His contributions are of lasting value and have already attracted much interest by other researchers… He created new conferences and workshops and took leadership as PC Chair for several prestigious scientific events… The high number of best paper awards and Journal First selections is a clear indicator for his impact on the research community."

Reviewer F: "Marouane conducts a very successful and highly visible research. The venues in which he has published are the top software engineering venues. His work has been a breakthrough work, widely cited by his peers. There are numerous other signs of his success: He received most influential paper awards and he has established worldwide cooperation and visibility. … Marouane's solutions of these issues are moving the whole field forward."

Reviewer G: "The work of Dr. Kessentini belongs into the top category in the area of search-based software engineering… As an indication of his status, he was asked to and did organize

various conferences and workshops already. This is again being far above what is achieved by other researchers at that stage."

Reviewer H: "Dr. Kessentini's technical papers in the area of software engineering especially search-based software engineering have achieved both high quality and high quantity. In particular, his technical papers have earned him the reputation of being a leading researcher in the subareas of search-based software refactoring and anti-patterns… It is noteworthy that his research on refactoring tools has produced industrial impact, being tech transferred to companies such as Ford, eBay, and Philips."

Summary of Recommendation:
Professor Kessentini's accomplishments in all the areas of research, teaching, and service are truly exceptional for someone at his level. We are very pleased to recommend, with strong support of the College of Engineering and Computer Science Executive Committee, Marouane Kessentini for promotion to associate professor of computer and information science, with tenure, Department of Computer and Information Science, College of Engineering and Computer Science.

Anthony W. England, Dean
College of Engineering and Computer Science

Daniel Little, Chancellor
University of Michigan-Dearborn

May 2018