Approved by the Regents May 15, 2014

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

Murali Mani, 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.	2003	University of California -Los Angeles
M.S.	2000	University of California -Los Angeles
B.Tech.	1998	Indian Institute of Technology -Madras

Professional Record:

2010 – Present	Assistant Professor of Computer Science, University of Michigan-Flint
2003 – 2009	Assistant Professor of Computer Science, Worcester Polytechnic Institute
2008 – 2003	Research Assistant, University of California-Los Angeles
2000 – 2003	Teaching Assistant, University of California-Los Angeles
1997 – 1998	Teaching Assistant, Indian Institute of Technology-Madras

Summary of Evaluation:

Teaching – Professor Mani is a fine teacher who engages his students meaningfully in his research as part of his pedagogy. He has taught regularly five different undergraduate courses successfully. In addition, he has taught regularly in the graduate programs of computer science, engineering, and physics. Students respond well to the teaching of Professor Mani because he uses high impact practices such as involvement in experiential learning through research. This sort of excellent teaching is well suited for the further growth of computer science at the University of Michigan-Flint.

Research – The research productivity of Professor Mani is outstanding in terms of both quantity and quality. He regularly presents and is published in conferences and journals that are considered very high in the discipline of computer science on the topics of secure query in cloud environments and XML stream processing. These research topics are important and especially timely given the expansion of computing platforms and mobile devices worldwide. Professor Murali has demonstrated a significant commitment to research that should maintain his excellent productivity well into the future.

Recent and Significant Publications:

Journal Publications

Mingzhu Wie, Elke A. Rundensteiner, Murali Mani, and Ming Li. "Processing Recursive XQuery Over XML Streams: The Raindrop Approach," *Data and Knowledge Engineering* (DKE) 65(2): pp 243-265, 2008.

Song Wang, Elke A. Rundensteiner, and Murali Mani. "Optimization of Nested XQuery Expressions With Orderby Clauses," *Data and Knowledge Engineering* (DKE) 60(2), pp 303-325, 2007.

Murali Mani, Song Wang, Dan Dougherty, and Elke A. Rundensteiner. "Join Minimization in XML-to-SQL Translation: An Algebraic Approach," *Association of Computer Machinery Special Interest Group on Management of Data Record,* (ACM SIGMOD) 35(1), pp 20-25, 2006.

Ling Wang, Elke A. Rundensteiner, and Murali Mani. "Updating XML Views Published Over Relational Databases: Towards the Existence of a Correct Update Mapping," *Data and Knowledge Engineering* (DKE) 58(3), pp 263-298, 2006.

Hong Su, Elke A. Rundensteiner, and Murali Mani. "Automation Meets Algebra: A Hybrid Paradigm for XML Stream Processing," *Data and Knowledge Engineering* (DKE) 59(3), pp 576-602, 2006.

Makoto Murata, Dongwon Lee, Murali Mani, and Kohsuke Kawaguchi. "Taxonomy of XML Schema Languages Using Formal Language Theory," *Association of Computer Machinery Transactions of Internet Technology* (ACM TOIT) 5(4), pp 660-704, 2005.

Book Chapter

Murali Mani. "Finite State Models for XML Processing," (Invited Article), Handbook of Finite State Based Models and Applications, Jiacun Wang (ed), CRC Press, 2012.

Murali, Mani. "XML Views," (invited article), Encyclopedia of Database Systems, Tamer Ozsu, Ling Liu (eds), Springer, pp 3656-3659, 2009.

Mingzhu Wei, Ming Li, Elke A. Rundensteiner, Murali Mani, Hong Su. "XML Stream Processing: Current Technologies and Open Challenges," (open and novel issues of) XML Database Applications: Future Directions and Advanced Technologies, 2008.

Murali Mani and Antonio Badia. "Semistructured Data and Its Conceptual Models," Encyclopedia of Database Technologies and Applications, pp 607-612, 2005.

Recent Conference Activity – Competitive Papers

Murali Mani. "Enabling Secure Query Processing in the Cloud Using Fully Homomorphic Encryption," Workshop on Data Analytics in the Cloud (DanaC), in conjunction with ACM SIGMOD/PODS, NewYork, New York, June 2013.

Murali Mani and Quamrul Mazumder. "Incorporating Metacognition into Learning," ACM Technical Symposium on Computer Science Education (SIGCSE), Denver, Colorado, March 2013, pp 53-58.

Murali Mani. "Using Fully Homomorphic Encryption to Enable Secure Database as a Service," (GongShow Talk), Conference on Innovative Data Systems Research (CIDR), Asilomar, California, January 2013.

Murali Mani, Mohamad Alawa, and Arunlal Kalyanasundaram. "Algebraic Constructs for Querying Provenance," International Conference on Advances in Databases, Knowledge and Data Applications (DBKDA), Saint Giles, Reunion Island, February-March 2012.

Murali Mani and Quamrul Mazumder. "Active Learning in Computer Science Education Using Metacognition," (Poster), ACM Technical Symposium on Computer Science Education (SIGCSE), Raleigh, North Carolina, February-March 2012, p 671.

Ming Li, Murali Mani, Elke Rundensteiner, and Tao Lin. "Complex Event Pattern Detection Over Streams With Interval-Based Temporal Semantics," ACM International Conference on Distributed Event Based Systems (DEBS), New York, New York, July 2011, pp 291-302.

Murali Mani, Mohamad Alawa, and Arunlal Kalyanasundaram. "Query Language Constructs for Provenance," (Poster), International Database Engineering and Applications Symposium (IDEAS), Lisbon, Portugal, September 2011, pp 254-255.

Murali Mani. "Efficient Event Stream Processing: Handling Ambiguous Events and Patterns with Negation," International Workshop on Data Management for Emerging Network

Infrastructures (DAMEN), held in conjunction with DASFAA International Conference, Hong Kong, China, April 2011.

Murali Mani, Ming Li, Elke A. Rundensteiner, and Tao Lin. "Constraint-Aware Complex Event Pattern Detection Over Streams," Database Systems for Advanced Applications (DASFAA), Tsukuba, Japan, April 2010, pp 199-215.

Murali Mani, Di Wang, and Elke A. Rundensteiner. "Cluster-and-Conquer: Hierarchical Multi-Metric Query Processing in Large-Scale Database Federations," International Database Engineering and Applications Symposium (IDEAS), 2010: pp 257-268.

Murali Mani, Mingzhu Wei, and Elke A. Rundensteiner. "Achieving High Output Quality Under Limited Resources Through Structure-Based Spilling in XML Streams." proceedings of the VLDB Endowment, PVLDB 3(1): 1267-1278 (2010).

Service – Professor Mani has been effectively engaged in service at the departmental and college level at UM-Flint. In addition, he has been actively involved with service to professional organizations related to Computer Science in a way that is consistent with expectations within his department and UM-Flint generally. Recently he was appointed to a strategic planning group to help shape the future of the College of Arts and Sciences.

External Reviewers:

Reviewer (A):
"Dr. Mani has also worked in the Scholarship of Teaching and Learning in Computer Science Education and has published a paper in ACM SIGCSE, which is considered a top conference in the area. ... Dr. Mani has an excellent publication record from his graduate school days and has maintained it over the years. Recently, he has published mainly in conferences and workshops as opposed to journals."

Reviewer (B):
"My overall impression of Dr. Mani's scholarship is that it is of good quality and quantity for an assistant professor at an institution that requires an 18 semester hour teaching load per year."

Reviewer (C):
"I would like to comment on Dr. Mani's strong publication record. He has published in top conferences in the Database area, including two prestigious papers in VLDB, which is considered the second best database conference (after SIGMOD)."

Reviewer (D):
"Professor Mani's early research was on formal aspects of XML Schema and data modeling, and his paper on the taxonomy of XML Schema languages in *Transactions on Internet Technology* is his most significant work in this area. It is widely cited and highly regarded."

Reviewer (E):
"My impression of Mani's research work is excellent. Since year 2010 up to date, Mani has published 10 papers based the [sic] DBLP list, a highly referenced publication index in computer science. Among these publications, 6 are ranked at excellent Level in Australian standards."

Reviewer (F):
"Murali has published extensively in conferences and journals (more than 50) at various prestigious venues including at PVLDB and VLDB, ACM SIGCSE, ICDE, ACM DEBS, IDEAS, DASFAA,

DKE, ACMTOIT, WWW, ACM SIGMOD workshops, XSym and EEXTT. His work has had significant impact in research community, which is also evidenced by his total number of citations (more than 1500)."

Summary of Recommendation:

Professor Mani is a gifted teacher who engages his students meaningfully in the learning process. He is also a productive scholar working on important topics that will impact the discipline and society. I concur with the Executive Committee and enthusiastically recommend that Murali Mani be promoted to associate professor of computer science, with tenure, Department of Computer Science, Engineering, and Physics, College of Arts and Sciences.

Recommended by:

Albert C. Price

Albert C. Price, Interim Dean
College of Arts and Sciences

Recommendation endorsed by:

Gerard Voland

Gerard Voland, Provost and
Vice Chancellor for Academic Affairs

Ruth J. Person

Ruth J. Person, Chancellor
University of Michigan-Flint

May 2014