Approved by the Regents
May 20, 2010

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering

Euisik Yoon, associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, and associate professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering, is recommended for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, and professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering.

Academic Degrees:

Ph.D.	1990	University of Michigan, Electrical Engineering, Ann Arbor, MI
M.S.	1984	Seoul National University, Electronics Engineering, Seoul, Korea
B.S.	1982	Seoul National University, Electronics Engineering, Seoul, Korea

Professional Record:

2009-present	Associate Professor (without tenure), Department of Biomedical Engineering, University of Michigan
2008-present	Associate Professor (with tenure), Department of Electrical Engineering and Computer Science, University of Michigan
2005-2008	Associate Professor (with tenure), Department of Electrical and Computer Engineering, University of Minnesota, MN
2001-2005	Associate Professor (without tenure), Department of Electrical Engineering and Computer Science, KAIST, Daejeon, Korea
2000-2001	Visiting Faculty, Agilent Laboratories, Palo Alto, CA
1996-2001	Assistant Professor, Department of Electrical Engineering and Computer Science, KAIST, Daejeon, Korea
1994-1996	Member of Technical Staff, Silicon Graphics, Mountain View, CA
1990-1994	Member of Research Staff, Fairchild Research Center, National Semiconductor Corporation, Santa Clara, CA

Summary of Evaluation:

Teaching: Having only taught at Michigan for one year, a review of Professor Yoon's teaching portfolio includes data from his appointments as assistant and associate professor at the Korean Advanced Institute of Science and Technology (KAIST) and the University of Minnesota. Professor Yoon developed multiple new courses at the University of Minnesota and KAIST, which appear to have been very successful. He has incorporated some aspects of these courses into existing EECS 414 and EECS 425 here at Michigan. His average Q1, Q2, and class enrollment for EECS 414 are around the average for the department. His course evaluations are similar to those he received while teaching at Minnesota.

Professor Yoon is an outstanding student mentor. He has graduated a total of 14 Ph.D. students, 10 of which are from KAIST and two are from the University of Minnesota. Letters from students portray him as very supportive and inspirational.

Research: Professor Yoon has established himself as one of the country's leading researchers in the field of microfabrication technology and integrated circuit/system design for bioMEMS (Micro ElectroMechanical System) and radio frequency MEMS. His prior industrial experience at National

Semiconductor and Silicon Graphics has added a dimension of relevance to his work that is frequently missing from the work of his peers. Professor Yoon has initiated various collaborations with colleagues in the medical school and other departments across campus, as well as with faculty at Rutgers and Washington University.

Professor Yoon's research has resulted in over 54 articles in top journals and another 97 papers in conference proceedings. He is well recognized around the world by prominent researchers in the field. In addition to traditional research channels, Professor Yoon's research has been closely coupled with industrial partners such as Daewoo and Samsung. These collaborations have led to 17 patents granted and five patents pending. He is solving problems that our industrial partners consider important. To support his group of graduate students, he has raised significant research funds.

Recent and Significant Publications:

S.-J. Kim, K.-H. Lee, S.-W. Han, and E. Yoon, "A CMOS Fingerprint System-on-a-Chip With Adaptable Pixel Networks and Column-Parallel Processors for Image Enhancement and Recognition," *IEEE Journal of Solid-Sate Circuits*, Vol. 43, No. 11, pp. 2558-2567, 2008.

J. Choi, S.-W. Han, S -J. Kim, S -I. Chang, and E. Yoon, "A Spatial-Temporal Multi-resolution CMOS Image Sensor With Adaptive Frame Rates for Tracking the Moving Objects in Region-of-Interest and Suppressing Motion Blur," *IEEE Journal of Solid-Sate Circuits*, Vol. 42, No. 12, pp. 2978-2989, Dec. 2007.

H.-K. Lee, S.-I. Chang, and E. Yoon, "A Flexible Polymer Tactile Sensor: Fabrication and Modular Expandability for Large Area Deployment," *IEEE Journal of Micro Electro-Mechanical Systems*, Vol. 5, No. 6, pp. 1681-1686, 2006.

J-B Yoon, B-I Kim, Y-S Choi, and E. Yoon, "3-D Construction of Monolithic Passive Components for RF and Microwave IC's Using Thick-Metal Surface Micromachining Technology," *IEEE Transactions on Microwave Theory and Techniques*, (Special Issues on RF MEMS), Vol. 51, No.1, pp. 279-288, January 2003.

K.-S. Yun, I.-J. Cho, J.-U. Bu, C.-J. Kim, and E. Yoon, "A Surface-Tension Driven Micropump for Low Voltage and Low Power Operations," *IEEE Journal of MEMS*, Vol. 11, No. 5, pp. 454-461, Oct, 2002.

Service: Internal to his department, Professor Yoon has led a research thrust in the WIMS ERC and built bridges between engineering and the Medical School. At the University of Minnesota he was active launching a Nano & Micro Systems Applications Center and was a member of several College wide committees. Professor Yoon performs extensive external service to professional organizations. He was the general chair of an international symposium, and was a member of program committees for several MEMS conferences. He has also served on the editorial boards of two journals.

External Reviewers:
Reviewer A: "Dr. Yoon has made substantial creative contributions to the field of MEMS, has received significant international recognition, and I highly recommend his promotion to Professor at the University of Michigan."

Reviewer B: "The detection of 10's of base pairs using a standard CMOS process for the sensor and interface circuit is real breakthrough."

Reviewer C: "Prof. Yoon is an excellent academician with high intellect and energy as well as many initiatives....I would rank him at the top tier among the current MEMS researchers at a similar stage in their career, and highly recommend for his promotion to Professor. He would have been granted such promotion at my institution."

Reviewer D: "His research covers an impressively wide range of topics ... Dr. Yoon's publication productivity and quality is excellent....I have no doubt that he would be promoted to the rank of Professor at [my institution] at this time."

Reviewer E: "Euisik Yoon is one of only a handful of professors worldwide willing to enthusiastically embrace the complexity of such CMOS sensor systems and able to successfully harvest the full benefit of this approach."

Reviewer F: "I strongly support his promotion to Professor. In my opinion the research case in terms of scholarly output and impact clearly supports this promotion."

Reviewer G: "I have no doubt that he will make important contributions in the area of MEMS field that will greatly benefit University of Michigan and USA as well."

Reviewer H: "Basically, each individual sensor is everyone's research but the collective function of many sensors is rich of real and new problems. This is a big boost on his reputation because not many people in the MEMS field can attack these problems. ... I have no doubt that Dr. Yoon has found his niche and will continue to flourish in integrated MEMS."

Summary of Recommendation: Professor Yoon is a prominent and very productive faculty member who has made significant contributions to the field of microfabrication technology and MEMS. He is an excellent teacher and mentor and he is a leader who contributes to both external and internal service. It is with the unanimous support of the College of Engineering Executive Committee that I recommend Euisik Yoon for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, and professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering.

David C. Munson Jr.

David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

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