Approved by the Regents
May 21, 2020

PROMOTION RECOMMENDATION
The University of Michigan
College of Engineering
Department of Electrical Engineering and Computer Science

David D. Wentzloff, associate professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering, is recommended for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Academic Degrees:

Ph.D.	2007	Massachusetts Institute of Technology, Electrical Engineering, Cambridge, MA
M.S.	2002	Massachusetts Institute of Technology, Electrical Engineering, Cambridge, MA
B.S.	1999	University of Michigan, Electrical Engineering, Ann Arbor, MI

Professional Record:

2017-present	Faculty Director of Graduate Education, Center for Entrepreneurship, College of Engineering, University of Michigan
2014-2017	Co-Director of Graduate Education, Center for Entrepreneurship, College of Engineering, University of Michigan
2013-present	Associate Professor (with tenure), Department of Electrical Engineering and Computer Science, University of Michigan
2007-2013	Assistant Professor, Department of Electrical Engineering and Computer Science, University of Michigan

Summary of Evaluation:

Teaching: Professor Wentzloff is an energetic and outstanding teacher and mentor to students, at both undergraduate and graduate levels. He has graduated twelve Ph.D. students as the chair and another four as a co-chair. He currently advises nine doctoral students. Moreover, he has advised several M.S. and undergraduate students. Professor Wentzloff has taught a wide range of classes from advanced graduate classes to introductory-level undergraduate topics. His teaching evaluations are consistently excellent. His passion and excellence in teaching were recognized by a 2015 Joel and Ruth Spira Excellence in Teaching Award and by two Eta Kappa Nu teaching awards. Professor Wentzloff has contributed extensively to the development and revision of both undergraduate and graduate classes. He has also led innovation in the curriculum through overhaul of how we teach electrical engineering to undergraduate students. Over the past few years, he has helped develop two important classes for the Electrical and Computer Engineering Division (ECE); namely a freshman-level engineering 100 class on drones and EECS 200, a new introductory class to ECE focusing on building systems. He also co-developed a new graduate-level class.

Research: Professor Wentzloff has made important contributions to critical problems in ultra-low-power integrated radios and systems, self-powered sensors, and design automation for analog circuits. His work on wireless systems has helped to dramatically improve the size and energy efficiency of sensing systems and computing nodes. In a significant milestone, Professor

Wentzloff demonstrated the first sub-1μW receiver. He collaborated with other researchers at Michigan to demonstrate a wireless sensing platform in a cubic millimeter volume. More recently, he has made pioneering advances in the automated synthesis of analog circuits, helping to shrink design time and cost. His publication record is strong, with over 35 journal and 70 conference papers, most in top-tier forums. He has raised substantial research funding from a diverse array of government and industry sources, his share from totaling more than $10M. Professor Wentzloff is the co-PI or PI of several large research efforts funded by NSF, including a large Engineering Research Center. His recent $6.4M grant from DARPA also shows his leadership as well as the significance of his research work.

Professor Wentzloff has successfully founded three start-ups in recent years: Everactive, Cubework, and Movellus. These companies are spinouts from his research at Michigan and together employ more than 70 people and have raised approximately $100M. He has played a significant role in these businesses, which is unusual given the size of his research, teaching, and service activities in academia.

Recent and Significant Publications:

A. Alghaihab, Y. Shi, J. Breiholz, H-S Kim, B. Calhoun, D. Wentzloff, "Enhanced Interference Rejection Bluetooth Low-Energy Back-Channel Receiver with LO Frequency Hopping," *IEEE Journal of Solid-State Circuits*, March 2019.

X. Chen, J. Breiholz, F. Yahya, C. Lukas, H-S Kim, B. Calhoun, D. Wentzloff, "Analysis and Design of an Ultra-Low-Power Bluetooth Low-Energy Transmitter With Ring Oscillator-Based ADPLL and 4× Frequency Edge Combiner," *IEEE Journal of Solid-State Circuits*, February 2019.

Y. Shi, X. Chen, H-S Kim, D. Blaauw, D. Wentzloff, "A 606μW mm-Scale Bluetooth Low-Energy Transmitter Using Co-Designed 3.5×3.5mm2 Loop Antenna and Transformer-Boost Power Oscillator," *IEEE International Solid-State Circuits Conference*, February 2019.

Jonathan K. Brown, David D. Wentzloff, "A GSM-Based Clock-Harvesting Receiver With –87 dBm Sensitivity for Sensor Network Wake-Up," *IEEE Journal of Solid-State Circuits*, March 2013.

Y. Park, D. Wentzloff, "An All-Digital 12 pJ/Pulse IR-UWB Transmitter Synthesized From a Standard Cell Library," *IEEE Journal of Solid-State Circuits*, May 2011.

Service: Professor Wentzloff is dedicated to providing an excellent balance of service both within his department and to the broader technical community. He has served on many departmental committees, and has chaired three reappointment committees for faculty in the ECE division. He played a leading role in the renovation of student space to create a large office space where graduate students can perform research and collaborate. He serves as the faculty director and chair of the Center for Entrepreneurship at the College of Engineering. In this role, he has developed a curriculum to assist other future entrepreneurs. He serves or has served on the technical program committees of several conferences. He is a sub-committee chair of the IEEE Radio Frequency Integrated Circuits Conference, a top conference. These activities demonstrate his strong commitment to the broader community as well as the community's respect for his involvement.

External Reviewers:
Reviewer A: "…Wentzloff has been active in the academic world along all the vectors. Clearly, he is a very good teacher: his numerical scores seem to be awfully high across every single course he has taught."

Reviewer B: "…based on Prof. David Wentzloff's outstanding scholarly contributions, highest quality of research, and his potential to continue making such impactful contributions, I unequivocally recommend him to be promoted to the rank of Professor with tenure."

Reviewer C: "… believe that, unlike many others in the field, Prof. Wentzloff tackles meaningful research problems. ... I find Prof. Wentzloff's research contributions to be meaningful, important, and refreshing."

Reviewer D: "Especially on the ultra-miniaturized mm-scale wireless system, David's research group is considered to be the pioneer in this field, and continuously expanding their influence."

Reviewer E: "…I find his record extraordinary in all areas of his profession. I feel such high level of demonstrated leadership as an Associate Professor is rare, reaching beyond the normal record of most Professors."

Summary of Recommendation: Professor Wentzloff is a very prominent and widely respected researcher who has made significant contributions to the field of radio-frequency and wireless integrated circuit design. He is an excellent teacher and mentor; and he is a leader who contributes both in external and internal service. It is with the support of the College of Engineering Executive Committee that I recommend David D. Wentzloff for promotion to professor of electrical engineering and computer science, with tenure, Department of Electrical Engineering and Computer Science, College of Engineering.

Alec D. Gallimore, Ph.D.
Robert J. Vlasic Dean of Engineering
College of Engineering

May 2020