



University of
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Office of the Senior Vice Chancellor
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Association for Computing Machinery (ACM)
Special Interest Group on Design Automation (SIGDA)
Awards Committee

Dear SIGDA Award Committee:

I am writing to strongly support Dr. Tsung-Wei Huang's nomination for the ACM SIGDA Outstanding New Faculty Award. I am currently Senior Vice Chancellor for Research at the University of Pittsburgh, as well as Distinguished Professor of Electrical and Computer Engineering, and of Computer Science. I was previously Head of Computer Science at the University of Illinois at Urbana-Champaign, and prior to that, spent 25 years on the faculty at Carnegie Mellon. During my career, I have worked on tools and algorithms (and startup companies) for core IC design problems (notably analog designs) and methods to manage the statistics of nanoscale chip design. I received both the 2017 IEEE/CEDA Phil Kaufman Award, and the 2021 ACM SIGDA Pioneering Achievement award for my contributions to EDA. I am also a Fellow of the IEEE, ACM, AAAS, and NAI.

I have known Tsung-Wei for almost ten years. At the University of Illinois at Urbana-Champaign (UIUC), we worked together closely to design the course, *VLSI Computer-aided Design (CAD): Logic to Layout*, on the Coursera platform. This was the first EDA class offered as a massive open online course (MOOC) and remains the largest class on EDA offered at global scale -- it has seen over 100,000 registered learners to date. I also served on Tsung-Wei's Ph.D. exam committee for his dissertation "Distributed Timing Analysis". His dissertation received the prestigious Outstanding Ph.D. Dissertation Award by ACM SIGDA in 2019.

Tsung-Wei has demonstrated great research results in EDA, in high-performance computing (HPC), and in work at their intersection. His impressive publications and scientific software developments place him at the very top of the field. For example, he has published over 70 papers in premier EDA and HPC conferences and journals (e.g., TPDS, TCAD, IPDPS, DAC, ICCAD). He is also the creator of OpenTimer, one of the earliest open-source circuit timing analysis tools, that has received much appreciation from the community. That project was later funded by DARPA under the *Intelligent Design of Electronic Assets* (IDEA) program to realize a 24-hour design cycle with no human in the loop.

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At the University of Utah, Tsung-Wei has secured over \$2M funding as a junior faculty to support his research on EDA, HPC, quantum computing, and machine learning. For example, he received the prestigious NSF CAREER award to advance circuit simulation using machine learning and heterogeneous parallelism, and an NSF OAC grant to study learning-based optimization methods for performance portability. In addition to high-quality research, Tsung-Wei has been a strong advocate of open-source software, which plays a key role in the vast success of today's computer science research. To give one notable example, his open-source parallel computing system, Taskflow, has received over one million downloads. Many companies (e.g., Nvidia, Intel, JetBrains, Xanadu) are using Taskflow to positively impact the computing industry. Because of these impacts, Tsung-Wei recently received a highly competitive NSF POSE award (a total of \$8M investment in 20 open-source software efforts nationally) to create an ecosystem for task-parallel computing, targeting EDA, quantum computing, and machine learning applications.

With his rapidly rising record of strong technical results and widely used software systems, I have no doubt Tsung-Wei will continue a very successful academic career. I truly believe that he is one of the most exceptional young researchers in the CAD community. I highly recommend him for the ACM SIGDA Outstanding New Faculty Award.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Rob A. Rutenbar', with a long horizontal flourish extending to the right.

Rob A. Rutenbar, Ph.D.
Senior Vice Chancellor for Research
Distinguished Professor of Computer Science
Distinguished Professor of Electrical & Computer Engineering
University of Pittsburgh