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Dear SIGDA Award Committee,

I am writing this letter to strongly support my former Ph.D. student Tsung-Wei Huang's application for the ACM SIGDA Outstanding New Faculty Award. Tsung-Wei was an exceptionally bright student who has continuously impressed me. I have graduated over 50 Ph.D. students. Tsung-Wei is the best among those at similar stages of their careers.

I am currently the Dean of the Faculty of Engineering at the Chinese University of Hong Kong (CUHK). Before CUHK, I was the Edward C Jordan Professor in the Department of Electrical and Computer Engineering (ECE) and the Executive Associate Dean in the College of Engineering at the University of Illinois at Urbana-Champaign (UIUC). During my career, I have published over 500 papers in Design Automation.

Tsung-Wei has been a crucial member of my research team since he joined UIUC in Fall 2013. He has demonstrated extraordinary research capability and continued to impress me. During his Ph.D., he has published many papers in premier high-performance computing (HPC) and computer-aided design (CAD) conferences and journals, such as IPDPS, DAC, ICCAD, TCAD, and TPDS. He also received many awards that recognize his research contributions. Notably, his Ph.D. work has received the 2019 ACM SIGDA Outstanding Ph.D. Dissertation Award.

Tsung-Wei has demonstrated a strong and independent research profile since he joined the University of Utah in 2019. He is supervising seven Ph.D. students at the University of Utah and has published many papers in top-tier conferences and journals (e.g., ICPP, HPDC, DAC, ICCAD, TPDS). Over the past three years, he has secured over $2.15M research grants (e.g., NSF CAREER/TI/OAC/SHF, DARPA) to support his students. Besides, Tsung-Wei has successfully extended his research agenda to HPC, machine learning, and quantum computing. For example, his student has won the Champion Award from the 2020 HPEC Sparse Neural Network Graph Challenge and the Second Place in 2022 ACM PACT Student Research Competition. The quantum start-up, Xanadu, has deployed Tsung-Wei's parallel programming system, Taskflow, to their commercial quantum simulator.

I want to emphasize the impacts of Tsung-Wei's research. In addition to top-tier publications, he has made his research available in several open-source software projects to benefit the entire computing community. For instance, he created the OpenTimer software which has become one of the earliest open-source CAD tools that assist designers in analyzing the timing of their designs. OpenTimer has

received many recognitions from the CAD community, such as ACM SIGDA Outstanding Ph.D. Dissertation Award, Best Open-source Software in ICCAD workshop, and golden timers by various research and education projects (e.g., DAC/ICCAD/TAU CAD Contests). Additionally, Tsung-Wei is the creator of the Taskflow project, a novel parallel computing system to streamline the building of HPC applications. Since 2019, Taskflow has received over 1.5M downloads and is being used by many industrial organizations (e.g., Xanadu Quantum, AMD Vivado, Nvidia GameWorks). Tsung-Wei's contributions to the scientific computing community are no doubt significant and will continue to impact our society positively.

Tsung-Wei is clearly an independent and quality-oriented researcher. I am very proud of him. I give him my highest recommendation for the SIGDA Outstanding New Faculty Award!

Sincerely,

Martin D. F. Wong
Dean, Faculty of Engineering
Choh-Ming Li Professor of Computer Science and Engineering