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Dear Members of the Search Committee:

Enclosed please find my curriculum vitae, together with other required materials, in response to your recent advertisement for a tenure-track assistant professor position. It appears that my professional experience and research interests are very much in line with your requirements, and I feel that I have sufficient qualifications to warrant your serious interest. Please consider the following:

While working as a PhD student and postdoctoral research associate in the laboratory of Dr. Kono at Rice University conducting multidisciplinary research encompassing electrical and computer engineering, physics, materials science and chemistry, I have

- developed an innovative technique for preparing unprecedentedly well-aligned (or crystalline) wafer-scale carbon nanotube films (*Nature Nanotechnology*, 2016),
- pioneered the field of graphene-based optoelectronics in the entire electromagnetic spectrum (*ACS Nano*, 2012; *Nano Letters*, 2013; *Nano Letters*, 2014; *Nano Letters*, 2014),
- created novel platforms for studies of tunable microcavity exciton-polaritons (*Nature Photonics*, 2018) and ultrahigh-temperature nanophotonics (*PNAS*, under review),
- played the primary role in writing a grant proposal, which has been funded by the National Science Foundation (Division of Electrical, Communications and Cyber Systems), and
- spearheaded a project while supervising undergraduate and young graduate students, publishing a paper as the corresponding author (*Advanced Functional Materials*, 2017).

My future research program will focus on data center hardware based on nanomaterials. The overall goal of my research is to unleash unprecedented modern nanomaterial properties to the macroscopic world for solving two of the main challenges we are facing in this information age: (1) How can data be transmitted and processed quickly and efficiently given limited resources? and (2) How can we produce more sustainable resources for powering these devices? I will reveal the extraordinary electronic and optoelectronic properties of nanomaterials on a macroscopic scale for efficient networking, high-performance computing, and sustainable powering.

My unique multidisciplinary expertise and extensive experience in materials science, physics, and electrical and computer engineering place me in a unique position to successfully conduct this innovative research. I also see many of the research activities underway across campus, such as nanotechnology and nanoscience (Nano Tech Center), would overlap very nicely with the research I wish to perform, and open up exciting new opportunities for collaboration.

My vision for teaching and mentoring is to develop comprehensive training practices while maintaining a diverse and inclusive classroom and research environment in order to maximize student engagement and optimize the learning process, ensuring students' success in a wide spectrum of endeavors.

I appreciate your consideration and look forward to hearing from you.

Sincerely,

A handwritten signature in black ink, appearing to read 'Weilu Gao'.

Weilu Gao