External Engagement Statement

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As a dedicated researcher in the field of silicon photonics, I have always been passionate about bridging the gap between advanced academic research and real-world applications. My work encompasses the development of custom silicon photonic devices and their applications in data-center networks, domains where innovative solutions can significantly impact both industry and society. My commitment to external engagement aligns seamlessly with Cornell Tech's distinguishing characteristic of fostering research that has direct commercial and societal impact.

1 Prior Accomplishments

My approach to external engagement is exemplified by my recent experience at the Optical Fiber Communication Conference and Exhibition (OFC) 2023. There, I had the opportunity to interact with a representative from SiFotonics, MA, USA (https://www.sifotonics.com/en/). They expressed keen interest in our research on custom silicon photonic devices. This initial interaction led to several follow-up discussions and culminated in a mutually beneficial collaboration. We secured discounted MPW/full-wafer tapeout opportunities with their foundry service provider, UMC, Taiwan (https://www.umc.com/en/home/Index). This partnership not only validates the commercial viability of our research but also strengthens industry-academic links, providing tangible benefits to all parties involved.

Another example of my commitment to external engagement is my collaboration with the Hewlett Packard Labs (HPE Labs) during my Ph.D. journey, where I proactively reached out to the researchers there working on a synergistic topic. This initiative turned into a long-term collaboration beyond predefined projects, resulting in several co-authored papers. Our joint work not only enriched my doctoral research but also significantly influenced HPE's research program, showcasing the potential of academic-industry partnerships in shaping future technologies.

In addition to this, I have consistently engaged with various external entities, including:

Community and Educational Outreach: I have accommodated and led several tours of my research lab for high-school and undergraduate students, which were aimed at demystifying silicon photonics for a broad spectrum of audiences. These initiatives help in sparking interest in STEM fields and bring cutting-edge research into community conversations.

Industry Partnership: Beyond SiFotonics and HPE, I have collaborated with several other industry leaders, such as Cadence Design Systems and Intel, leveraging research findings to address specific industry needs and contributing to innovative product development.

2 Future Plans

At Cornell Tech, I plan to further

expand industry collaborations: build on existing partnerships and forge new ones, especially focusing on startups and tech companies in the New York City vicinity, such as Xscape Photonics (https://www.xscapephotonics.com), to create a symbiotic ecosystem where academic research fuels industry innovation;

deepen community engagement: initiate community-based projects that utilize our research to solve local challenges, thereby making a direct societal impact; and

create educational programs: develop introductory courses and workshops that integrate our research with K-12 education, especially targeting underserved communities to foster inclusivity and diversity in STEM education.

3 Conclusion

My commitment to external engagement is deeply rooted in the belief that academic research should reach beyond laboratories to make a meaningful societal and commercial impact. At Cornell Tech, I am excited about the prospect of not just continuing this journey but also amplifying its reach and impact through innovative collaborations and community-focused initiatives.