During Yuyang’s Ph.D. journey at UC Santa Barbara, I had the pleasure of co-advising Yuyang alongside his primary advisor, Prof. Kwang-Ting Cheng. We co-chaired his dissertation, which was exemplary in its establishment variation-aware design automation methodologies for silicon photonics optical interconnects, truly groundbreaking work in the emerging field. The scope of Yuyang’s dissertation was both expansive and deeply focused, covering the spectrum from device to system levels. This comprehensive approach does not compromise on depth; each of his research components is thoroughly explored, demonstrating an intricate understanding of the complexity within.

A crucial aspect of Yuyang’s contribution was being a pioneering role in recognizing and addressing the need for credible co-simulation of electronic and photonic devices and circuits in a unified platform. He was among the first to integrate accurate compact models and simulation methodologies of silicon photonic devices into well-established EDA platforms, such as Cadence Virtuoso. The use of Verilog-A models to describe photonic components, a method extensively explored and validated in Yuyang’s thesis, later became the core of Cadence’s electronic-photonic interoperability feature.

Yuyang has also significantly contributed to the robustness and energy efficiency of silicon photonics circuit designs. His has proposed several techniques for process variation characterization and mitigation, enhancing the circuits' resilience against process uncertainties and reducing the need for power-intensive post-fabrication tuning. An outstanding characteristic of Yuyang’s work is the integration of actual device measurement data into circuit- and system-level analyses, ensuring practical relevance and application of his findings.

At a time when photonics design automation was just gaining traction, driven by the increasing complexity required of photonics integrated circuits, Yuyang actively promoted the convergence of electronic and photonic research communities. His contributions have been recognized in esteemed publication venues of both communities, such as DAC, ICCAD, OFC, and JLT. Through these efforts, he has not only presented valuable insights but also fostered a more integrated and collaborative approach in the field of electronic and photonic design automation.