**Zhengqi, Gao**

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**Education**

**Massachusetts Institute of Technology** Cambridge, USA

*Ph.D. in Electrical Engineering and Computer Science* Sep 2021 – Jun 2026 (Expected)

* GPA: 5.00/5.00 (Rank: NA); work with Prof. Duane S. Boning
* Research interests: design automation for photonic/electronic integrated circuits and machine learning

**Fudan University** Shanghai, China

*M.S. in Microelectronics and Solid State Electronics* Sep 2018 – Jun 2021

* GPA: 3.82/4.00 (Rank: NA); worked with Prof. Jun Tao and Prof. Xin Li (Duke Univ.)
* Research interests: electronic design automation (EDA), and machine learning

*B.E. in Microelectronic Science and Engineering* Sep 2014 – Jun 2018

* GPA: 3.84/4.00 (Rank: 4/71); selected to Elite Engineering Program (top 5%)
* Relevant coursework: Mathematical Analysis, Probability, Mathematical Statistics and Stochastic Process, Signal and System, Data Structure and Algorithm Design, Design of Analog Integrated Circuits

**Selected Publications**

For the full publication list, please view the [Google Scholar page](https://scholar.google.com/citations?user=igvvVY4AAAAJ&hl=en).

1. J. Gu, **Z. Gao**, C. Feng, H. Zhu, R. T. Chen, D. S. Boning, and D. Z. Pan, “NeurOLight: A Physics-Agnostic Neural Operator Enabling Parametric Photonic Device Simulation,” *Conference on Neural Information Processing Systems (Neurips)*, 2022. [[PDF](https://arxiv.org/abs/2209.10098)] [[Code](https://github.com/JeremieMelo/NeurOLight)]
2. **Z. Gao**, D. Zhang, L. Daniel, and D. S. Boning, “NOFIS: Normalizing Flow for Rare Circuit Failure Analysis,” *ACM/IEEE* *Design Automation Conference* (DAC), 2024. (*MARC* 2024 Best Pitch Award) [[PDF](https://arxiv.org/pdf/2310.19167.pdf)][[Code](https://github.com/zhengqigao/NOFIS-DAC24/tree/main)]
3. **Z. Gao**, X. Chen, Z. Zhang, C. Y. Lai, U Chakraborty, W. Bogaerts, and D. S. Boning, “Provable Routing Analysis of Programmable Photonics,” *IEEE Journal of Lightwave Technology* (*IEEE JLT*). [[PDF](https://ieeexplore.ieee.org/document/10491250)]
4. **Z. Gao**, Z. Zhang, and D. S. Boning, “Few-Shot Bayesian Performance Modeling for Silicon Photonic Devices Under Process Variation,” *IEEE Journal of Lightwave Technology* (*IEEE JLT*). [[PDF](https://ieeexplore.ieee.org/abstract/document/10109764/)]
5. Z. Zhang, M. Notaros, **Z. Gao**, U. Chakraborty, J. Notaros, and D. S. Boning, “Impact of process variations on splitter-tree-based integrated optical phased arrays,” *Opica Express* (OE). [[PDF](https://opg.optica.org/oe/viewmedia.cfm?uri=oe-31-8-12912&html=true)]
6. **Z. Gao**, X. Chen, Z. Zhang, U. Chakraborty, W. Bogaerts, and D. S. Boning, “Automatic Synthesis of Light Processing Functions for Programmable Photonics: Theory and Realization,” *Photonics Research* (highlighted as an editor’s pick). [[PDF](https://opg.optica.org/prj/fulltext.cfm?uri=prj-11-4-643&id=528691)] [[Code](https://github.com/zhengqigao/BayesOpt-JLT2022)]
7. **Z. Gao**, X. Chen, Z. Zhang, U. Chakraborty, W. Bogaerts, and D. S. Boning “Automatic Synthesis of Light Processing Functions for Programmable Photonics,” *IEEE Photonics Conference (IEEE IPC)*, 2022. [[PDF](https://arxiv.org/abs/2208.14453)]
8. **Z. Gao**, Z. Zhang and D. S. Boning, “Automatic Synthesis of Broadband Silicon Photonic Devices via Bayesian Optimization,” *IEEE Journal of Lightwave Technology (IEEE JLT)*. [[PDF](https://ieeexplore.ieee.org/document/9893366/)][[Code](https://github.com/zhengqigao/BayesOpt-JLT2022)]
9. **Z. Gao**, Z. Zhang and D. S. Boning, “Automatic Design of a Broadband Directional Coupler via Bayesian Optimization,” *Conference on Lasers and Electro-Optics (CLEO)*, 2022. [[PDF](https://opg.optica.org/abstract.cfm?uri=CLEO_SI-2022-JW3B.156)]
10. Z. Liang, H. Wang, J. Cheng, Y. Ding, H. Ren, **Z. Gao**, Z. Hu, D. S. Boning, X. Qian, S. Han, W. Jiang, and Y. Shi “Variational Quantum Pulse Learning,” *IEEE International Conference on Quantum Computing and Engineering (IEEE QCE)*, 2022. [[PDF](https://arxiv.org/abs/2203.17267)]

**Additional Information**

* **Internship Experiences:** Baidu Inc., Shanghai QiZhi AI Institute, Nvidia
* **Independent Reviewer**: IEEE TCAD, Neurips, Optica Express, etc.,
* [**OPTSys Seminar Series**](https://sites.google.com/view/optsys/home?authuser=1)**:** A monthly online seminar series inviting to discuss advances in optics and photonics
* **PRML Solution Manual** (Github 900+ stars)