

Yuyang WANG

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APPOINTMENTS

Columbia University in the City of New York

Postdoctoral Research Scientist, Columbia Nano Initiative

New York, New York, USA

2021–Present

EDUCATION

University of California, Santa Barbara

Ph.D. in Electrical and Computer Engineering

Santa Barbara, California, USA

2018–2021

University of California, Santa Barbara

M.S. in Electrical and Computer Engineering

Santa Barbara, California, USA

2015–2018

Tsinghua University




B.Eng. in Electronic Engineering

Beijing, China








2011–2015

PUBLICATIONS

Refereed Journal Papers

- J1 A. James, A. Rizzo, **Y. Wang**, A. Novick, S. Wang, R. Parsons, K. Jang, M. Hattink, and K. Bergman, “Process Variation-Aware Compact Model of Strip Waveguides for Photonic Circuit Simulation,” *Journal of Lightwave Technology*, vol. Early Access, pp. 1–14, 2023.
 [10.1109/JLT.2023.3238847](https://doi.org/10.1109/JLT.2023.3238847).
- J2 **Y. Wang**, P. Sun, J. Hulme, M. A. Seyedi, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, “Energy Efficiency and Yield Optimization for Optical Interconnects via Transceiver Grouping,” *Journal of Lightwave Technology*, vol. 39, no. 6, pp. 1567–1578, Mar. 2021.
 [10.1109/JLT.2020.3039489](https://doi.org/10.1109/JLT.2020.3039489).
- J3 Z. Zhang, R. Wu, **Y. Wang**, C. Zhang, E. J. Stanton, C. L. Schow, K.-T. Cheng, and J. E. Bowers, “Compact Modeling for Silicon Photonic Heterogeneously Integrated Circuits,” *Journal of Lightwave Technology*, vol. 35, no. 14, pp. 2973–2980, Jul. 2017.
 [10.1109/JLT.2017.2706721](https://doi.org/10.1109/JLT.2017.2706721).

Refereed Conference Papers

- C1 A. James, **Y. Wang**, A. Rizzo, and K. Bergman, “Flexible, Process-Aware Compact Model of Effective Index in Silicon Waveguides for Commercial Foundries,” in *2022 International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD)*, Turin, Italy: IEEE, Sep. 2022, pp. 173–174.  [10.1109/NUSOD54938.2022.9894784](https://doi.org/10.1109/NUSOD54938.2022.9894784).
- C2 **Y. Wang** and K.-T. Cheng, “Traffic-Adaptive Power Reconfiguration for Energy-Efficient and Energy-Proportional Optical Interconnects,” in *2021 IEEE/ACM International Conference On Computer Aided Design (ICCAD)*, Munich, Germany: IEEE, Nov. 2021, pp. 1–9.  [10.1109/ICCAD51958.2021.9643475](https://doi.org/10.1109/ICCAD51958.2021.9643475).
- C3 **Y. Wang**, J. Hulme, P. Sun, M. Jain, M. A. Seyedi, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, “Characterization and Applications of Spatial Variation Models for Silicon Microring-Based Optical Transceivers,” in *2020 57th ACM/IEEE Design Automation Conference (DAC)*, San Francisco, CA, USA: IEEE, Jul. 2020, pp. 1–6.  [10.1109/DAC18072.2020.9218608](https://doi.org/10.1109/DAC18072.2020.9218608).
- C4 **Y. Wang** and K.-T. Cheng, “Task Mapping-Assisted Laser Power Scaling for Optical Network-on-Chips,” in *2019 IEEE/ACM International Conference on Computer-Aided Design (ICCAD)*, Westminster, CO, USA: IEEE, Nov. 2019, pp. 1–6.
 [10.1109/ICCAD45719.2019.8942146](https://doi.org/10.1109/ICCAD45719.2019.8942146).
- C5 **Y. Wang**, M. A. Seyedi, J. Hulme, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, “Bidirectional tuning of microring-based silicon photonic transceivers for optimal energy efficiency,” in *Proceedings of the 24th Asia and South Pacific Design Automation Conference*, Tokyo Japan: ACM, Jan. 2019, pp. 370–375.  [10.1145/3287624.3287649](https://doi.org/10.1145/3287624.3287649).
- C6 **Y. Wang**, M. A. Seyedi, R. Wu, J. Hulme, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, “Energy-efficient channel alignment of DWDM silicon photonic transceivers,” in *2018 Design, Automation & Test in Europe Conference & Exhibition (DATE)*, Dresden, Germany: IEEE, Mar. 2018, pp. 601–604.  [10.23919/DATE.2018.8342079](https://doi.org/10.23919/DATE.2018.8342079).
- C7 R. Wu, M. A. Seyedi, **Y. Wang**, J. Hulme, M. Fiorentino, R. G. Beausoleil, and K.-T. Cheng, “Pairing of microring-based silicon photonic transceivers for tuning power optimization,” in *2018 23rd Asia and South Pacific Design Automation Conference (ASP-DAC)*, Jeju: IEEE, Jan. 2018, pp. 135–140.  [10.1109/ASPDAC.2018.8297295](https://doi.org/10.1109/ASPDAC.2018.8297295).

- C8 R. Wu, **Y. Wang**, Z. Zhang, C. Zhang, C. L. Schow, J. E. Bowers, and K.-T. Cheng, “Compact modeling and circuit-level simulation of silicon nanophotonic interconnects,” in *Design, Automation & Test in Europe Conference & Exhibition (DATE), 2017*, Lausanne, Switzerland: IEEE, Mar. 2017, pp. 602–605. doi [10.23919/DATE.2017.7927057](https://doi.org/10.23919/DATE.2017.7927057).
- C9 A. Ghofrani, M. A. Lastras-Montano, **Y. Wang**, and K.-T. Cheng, “In-place Repair for Resistive Memories Utilizing Complementary Resistive Switches,” in *Proceedings of the 2016 International Symposium on Low Power Electronics and Design*, San Francisco Airport CA USA: ACM, Aug. 2016, pp. 350–355. doi [10.1145/2934583.2934590](https://doi.org/10.1145/2934583.2934590).
- C10 C. Xu, F. X. Lin, **Y. Wang**, and L. Zhong, “Automated OS-level Device Runtime Power Management,” in *Proceedings of the Twentieth International Conference on Architectural Support for Programming Languages and Operating Systems*, Istanbul Turkey: ACM, Mar. 2015, pp. 239–252. doi [10.1145/2694344.2694360](https://doi.org/10.1145/2694344.2694360).

Invited Conference Papers

- IC1 **Y. Wang**, L. Shao, M. A. Lastras-Montano, and K.-T. Cheng, “Taming Emerging Devices’ Variation and Reliability Challenges with Architectural and System Solutions [Invited],” in *2019 IEEE 32nd International Conference on Microelectronic Test Structures (ICMTS)*, Kita-Kyushu City, Fukuoka, Japan: IEEE, Mar. 2019, pp. 90–95. doi [10.1109/ICMTS.2019.8730924](https://doi.org/10.1109/ICMTS.2019.8730924).

TALKS AND PRESENTATIONS

- Ph.D. Forum at the 57th **ACM/IEEE Design Automation Conference (DAC)**, online virtual event Jun. 2020
Design and Optimization of Variation-Aware Runtime-Reconfigurable Optical Interconnects
- Invited talk at the 4th **Optical/Photonic Interconnects for Computing Systems (OPTICS) workshop**, Dresden, Germany Mar. 2018
Optimal Pairing and Non-Uniform Channel Alignment of Microring-based Transceivers for Comb Laser-Driven DWDM Silicon Photonics
- Invited talk at the **ECE Departmental Seminar**, Hong Kong University of Science and Technology Jan. 2018
Variation-Aware Modeling and Design of Silicon Photonic Systems

ACTIVITIES

- **Teaching Assistant** at the University of California, Santa Barbara
ECE 153B: Sensor & Peripheral Interface Design Winter 2019
- **Reviewer** of refereed journals 2018–Present
 - IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, IEEE Transactions on Very Large Scale Integration (VLSI) Systems, IEEE Access.
- **Textbook Translation**
 - T1 C. Hawkins, J. Segura, and P. Zarkesh-Ha, *CMOS Digital Integrated Circuits: A First Course (Chinese Edition)*, trans. by **Y. Wang** and Y. Yin. China Machine Press, 2016, original work published by the Institution of Engineering and Technology (IET) in 2013.
 - T2 S. Kundu and A. Sreedhar, *Nanoscale CMOS VLSI Circuits: Design for Manufacturability (Chinese Edition)*, trans. by **Y. Wang** and W. Xie. China Science Publishing, 2014, original work published by McGraw-Hill Education in 2010.

REFERENCES

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