

BEI YU

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RESEARCH INTERESTS

Machine learning & combinatorial algorithms in electronic design automation (EDA) and computer vision (CV).

EXPERIENCE

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| Associate Professor, CSE Department | Aug. 2021 – present |
| Assistant Professor, CSE Department | Aug. 2015 – Aug. 2021 |
| The Chinese University of Hong Kong, Hong Kong SAR | |
| Postdoctoral Researcher, ECE Department | Aug. 2014 – July 2015 |
| University of Texas at Austin, TX, USA | |

EDUCATION

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| University of Texas at Austin, TX, USA | Aug. 2010 – Aug. 2014 |
| Ph.D., Department of Electrical and Computer Engineering | |
| Tsinghua University, Beijing, P.R. China | Sep. 2007 – Jul. 2010 |
| M.S., Department of Computer Science and Technology | |
| UESTC, Chengdu, P.R. China | Sep. 2003 – Jul. 2007 |
| B.S., Information and Compute Science | |

SELECTED AWARDS AND HONORS

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| Best Paper Award | IEEE TSM | 2022 |
| Best Paper Award | DATE | 2022 |
| Best Paper Award | ICCAD | 2021 |
| Best Paper Award | ASPDAC | 2021 |
| Best Paper Award | Integration, VLSI Journal | 2018 |
| Best Paper Award | ISPD | 2017 |
| Best Paper Award | ICCAD | 2013 |
| Best Paper Award | ASPDAC | 2012 |
| Best Student Paper Award | ICTAI | 2019 |
| Best Student Paper Award | SPIE | 2016 |
| Best Paper Award Nomination | ISPD | 2024 |
| Best Paper Award Nomination | ASPDAC | 2023 |
| Best Paper Award Nomination | MLCAD | 2022 |
| Best Paper Award Nomination | DATE | 2021 |
| Best Paper Award Nomination | ASPDAC | 2019 |
| Best Paper Award Nomination | DAC | 2014 |
| Best Paper Award Nomination | ASPDAC | 2013 |
| Best Paper Award Nomination | ICCAD | 2011 |
| Research Fellow Scheme (RFS) Award | RGC | 2024 |
| Under-40 Innovator Award | DAC | 2024 |
| Distinguished Lecturer | IEEE CEDA | 2024 |
| Mid-Career Award | IEEE TCSDM | 2022 |
| Ernest S. Kuh Early Career Award | IEEE CEDA | 2022 |
| Meritorious Service Award | ACM SIGDA | 2021 |
| Outstanding Dissertation Award | EDAA | 2014 |
| Outstanding Students Abroad Award | China Scholarship Council | 2014 |
| SPIE Scholarship | SPIE | 2013 |
| IBM Ph.D. Scholarship | IBM | 2012 |
| 1st Place Award in CAD Contest | ICCAD | 2015 |
| 2nd Place Award in CAD Contest | ICCAD | 2018 |
| 2nd Place Award in CAD Contest | ICCAD | 2013 |
| 2nd Place Award in CAD Contest | ICCAD | 2012 |
| 3rd Place Award in CAD Contest | ICCAD | 2022 |
| 3rd Place Award in ISPD Contest | ISPD | 2020 |
| 3rd Place Award in ISPD Contest | ISPD | 2017 |
| 2nd Place Award in ICDAR Competition | ICDAR | 2021 |

Summary: IEEE TCAD (67), DAC (53), ICCAD (51), etc.

Journal Papers

- [J118] Ziyi Wang, Chen Bai, Zhuolun He, Guangliang Zhang, Qiang Xu, Tsung-Yi Ho, Yu Huang, Bei Yu, “[FGNN2: A Powerful Pre-training Framework for Learning the Logic Functionality of Circuits](#)”, accepted by IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD).
- [J117] Peng Xu, Siyuan Xu, Tinghuan Chen, Guojin Chen, Tsung-Yi Ho, Bei Yu, “[DeepOTF: Learning Equations-constrained Prediction for Electromagnetic Behavior](#)”, accepted by ACM Transactions on Design Automation of Electronic Systems (TODAES).
- [J116] Tinghuan Chen, Hao Geng, Qi Sun, Sanping Wan, Yongsheng Sun, Huatao Yu, Bei Yu, “[Wages: The Worst Transistor Aging Analysis for Large-scale Analog Integrated Circuits via Domain Generalization](#)”, accepted by ACM Transactions on Design Automation of Electronic Systems (TODAES).
- [J115] Haoyuan Wu, Zhuolun He, Xinyun Zhang, Xufeng Yao, Su Zheng, Haisheng Zheng, Bei Yu, “[ChatEDA: A Large Language Model Powered Autonomous Agent for EDA](#)”, accepted by IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD).
- [J114] Wenqian Zhao, Xufeng Yao, Shuo Yin, Yang Bai, Ziyang Yu, Yuzhe Ma, Bei Yu, Martin D.F. Wong, “[AdaOPC 2.0: Enhanced Adaptive Mask Optimization Framework for Via Layers](#)”, accepted by IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD).
- [J113] Yuyang Ye, Tinghuan Chen, Yifei Gao, Hao Yan, Bei Yu, Longxing Shi, “[Timing-driven Technology Mapping Approximation Based on Reinforcement Learning](#)”, accepted by IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD).
- [J112] Zehua Pei, Xufeng Yao, Wenqian Zhao, Bei Yu, “[Quantization via Distillation and Contrastive Learning](#)”, accepted by IEEE Transactions on Neural Networks and Learning Systems (TNNLS).
- [J111] Jiequan Cui, Zhisheng Zhong, Zhuotao Tian, Shu Liu, Bei Yu, Jiaya Jia, “[Generalized Parametric Contrastive Learning](#)”, accepted by IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI).
- [J110] Hongduo Liu, Yijian Qian, Youqiang Liang, Bin Zhang, Zhaohan Liu, Tao He, Wenqian Zhao, Jiangbo Lu, Bei Yu, “[A High-Performance Accelerator for Real-Time Super-Resolution on Edge FPGAs](#)”, ACM Transactions on Design Automation of Electronic Systems (TODAES), vol. 29, no. 03, pp. 53:1–53:25, 2024.
- [J109] Guojin Chen, Zixiao Wang, Bei Yu, David Z. Pan, Martin D.F. Wong, “[Ultra-Fast Source Mask Optimization via Conditional Discrete Diffusion](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 43, no. 07, pp. 2140–2150, 2024.
- [J108] Jianwang Zhai, Zichao Ling, Chen Bai, Kang Zhao, Bei Yu, “Machine Learning for Microarchitecture Power Modeling and Design Space Exploration: A Survey”, Journal of Computer Research and Development (J-CRAD), vol. 61, no. 06, pp. 1–19, 2024. (in Chinese)
- [J107] Shixin Chen, Shanyi Li, Zhen Zhuang, Su Zheng, Zheng Liang, Tsung-Yi Ho, Bei Yu, Alberto L. Sangiovanni-Vincentelli, “[Floorplet: Performance-aware Floorplan Framework for Chiplet Integration](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 43, no. 06, pp. 1638–1649, 2024.
- [J106] Peiyu Liao, Yuxuan Zhao, Dawei Guo, Yibo Lin, Bei Yu, “[Analytical Die-to-Die 3D Placement with Bistratal Wirelength Model and GPU Acceleration](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 43, no. 06, pp. 1624–1637, 2024.
- [J105] Bo Yang, Qi Xu, Hao Geng, Song Chen, Bei Yu, Yi Kang, “[Floorplanning with Edge-Aware Graph Attention Network and Hindsight Experience Replay](#)”, ACM Transactions on Design Automation of Electronic Systems (TODAES), vol. 29, no. 03, pp. 56:1–56:17, 2024.
- [J104] Yuzhe Ma, Xufeng Yao, Ran Chen, Ruiyu Li, Xiaoyong Shen, Bei Yu, “[Small is Beautiful: Compressing Deep Neural Networks for Partial Domain Adaptation](#)”, IEEE Transactions on Neural Networks and Learning Systems (TNNLS), vol. 35, no. 03, pp. 3575–3585, 2024.
- [J103] Binwu Zhu, Su Zheng, Ziyang Yu, Guojin Chen, Yuzhe Ma, Fan Yang, Bei Yu, Martin Wong, “[L2O-ILT: Learning to Optimize Inverse Lithography Techniques](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 43, no. 03, pp. 944–955, 2024.
- [J102] Xiaoli Luo, Zhuotao Tian, Taiping Zhang, Bei Yu, Yuan Yan Tang, Jiaya Jia, “[PFENet: Boosting Few-shot Semantic Segmentation with the Noise-filtered Context-aware Prior Mask](#)”, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), vol. 46, no. 02, pp. 1273–1289, 2024.
- [J101] Zhaoting Chen, Junzhe Cai, Changhao Yan, Zhaori Bi, Yuzhe Ma, Bei Yu, Dian Zhou, Xuan Zeng, “[pNeurFill: Enhanced Neural Network Model-Based Dummy Filling Synthesis with Perimeter Adjustment](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 43, no. 02, pp. 667–680, 2024.

- [J100] Yang Bai, Xufeng Yao, Qi Sun, Wenqian Zhao, Shixin Chen, Zixiao Wang, Bei Yu, “[GTCO: Graph and Tensor Co-Design for Transformer-based Image Recognition on Tensor Cores](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 43, no. 02, pp. 586–599, 2024.
- [J99] Yuyang Ye, Tinghuan Chen, Zicheng Wang, Hao Yan, Bei Yu, Longxing Shi, “[Fast and Accurate Aging-aware Cell Timing Model via Graph Learning](#)”, *IEEE Transactions on Circuits and Systems II (TCASII)*, vol. 71, no. 01, pp. 156–160, 2024.
- [J98] Chen Bai, Qi Sun, Jianwang Zhai, Yuzhe Ma, Bei Yu, Martin D.F. Wong, “[BOOM-Explorer: RISC-V BOOM Microarchitecture Design Space Exploration](#)”, *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, vol. 29, no. 01, pp. 1–23, 2024.
- [J97] Xiaoxiao Liang, Yikang Ouyang, Haoyu Yang, Bei Yu, Yuzhe Ma, “[RL-OPC: Mask Optimization with Deep Reinforcement Learning](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 43, no. 01, pp. 340–351, 2024.
- [J96] Guojin Chen, Ziyang Yu, Hongduo Liu, Yuzhe Ma, Bei Yu, “[DevelSet: Deep Neural Level Set for Instant Mask Optimization](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 12, pp. 5020–5033, 2023.
- [J95] Yuyang Ye, Tinghuan Chen, Yifei Gao, Hao Yan, Bei Yu, Longxing Shi, “[Aging-aware Critical Path Selection via Graph Attention Networks](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 10, pp. 5006–5019, 2023.
- [J94] Tinghuan Chen, Silu Xiong, Huan He, Bei Yu, “[TRouter: Thermal-driven PCB Routing via Non-Local Criss-cross Attention Networks](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 10, pp. 3388–3401, 2023.
- [J93] Wenqian Zhao, Yang Bai, Qi Sun, Wenbo Li, Haisheng Zheng, Nianjuan Jiang, Jiangbo Lu, Bei Yu, Martin D.F. Wong, “[A High-Performance Accelerator for Super-Resolution Processing on Embedded GPU](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 10, pp. 3210–3223, 2023.
- [J92] Peiyu Liao, Dawei Guo, Zizheng Guo, Siting Liu, Yibo Lin, Bei Yu, “[DREAMPlace 4.0: Timing-driven Placement with Momentum-based Net Weighting and Lagrangian-based Refinement](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 10, pp. 3374–3387, 2023.
- [J91] Ziyang Yu, Peiyu Liao, Yuzhe Ma, Bei Yu, Martin D.F. Wong, “[CTM-SRAF: Continuous Transmission Mask-based Constraint-aware Sub Resolution Assist Feature Generation](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 10, pp. 3402–3411, 2023.
- [J90] Su Zheng, Hao Geng, Chen Bai, Bei Yu, Martin Wong, “[Boosting VLSI Design Flow Parameter Tuning with Random Embedding and Multi-objective Trust-region Bayesian Optimization](#)”, *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, vol. 28, no. 05, pp. 1–23, 2023.
- [J89] Binwu Zhu, Xinyun Zhang, Yibo Lin, Bei Yu, Martin Wong, “[DRC-SG 2.0: Efficient Design Rule Checking Script Generation via Key Information Extraction](#)”, *ACM Transactions on Design Automation of Electronic Systems (TODAES)*, vol. 28, no. 05, pp. 1–18, 2023.
- [J88] Xiaogang Xu, Yi Wang, Liwei Wang, Bei Yu, Jiaya Jia, “[Conditional Temporal Variational AutoEncoder for Action Video Prediction](#)”, *International Journal of Computer Vision (IJCV)*, vol. 131, no. 10, pp. 2699–2722, 2023.
- [J87] Ziyi Wang, Zhuolun He, Chen Bai, Haoyu Yang, Bei Yu, “[Efficient Arithmetic Block Identification with Graph Learning and Network-flow](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 08, pp. 2591–2603, 2023.
- [J86] Siting Liu, Yuan Pu, Peiyu Liao, Hongzhong Wu, Rui Zhang, Zhitang Chen, Wenlong Lv, Yibo Lin, Bei Yu, “[FastGR: Global Routing on CPU-GPU with Heterogeneous Task Graph Scheduler](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 07, pp. 2317–2330, 2023.
- [J85] Yilun Chen, Shijia Huang, Shu Liu, Bei Yu, Jiaya Jia, “[DSGN++: Exploiting Visual-Spatial Relation for Stereo-based 3D Detectors](#)”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 45, no. 4, pp. 4416–4429, 2023.
- [J84] Zhuotao Tian, Pengguang Chen, Xin Lai, Li Jiang, Shu Liu, Hengshuang Zhao, Bei Yu, Ming-Chang Yang, Jiaya Jia, “[Adaptive Perspective Distillation for Semantic Segmentation](#)”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 45, no. 2, pp. 1372–1387, 2023.
- [J83] Ran Chen, Shoubo Hu, Zhitang Chen, Shengyu Zhu, Bei Yu, Pengyun Li, Cheng Chen, Yu Huang, Jianye Hao, “[A Unified Framework for Layout Pattern Analysis with Deep Causal Estimation](#)”, *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)*, vol. 42, no. 04, pp. 1199–1211, 2023.
- [J82] Tinghuan Chen, Grace Li Zhang, Bei Yu, Bing Li, Ulf Schlichtmann, “[Machine Learning in Advanced IC Design: A Methodological Survey](#)”, *IEEE Design & Test*, vol. 40, no. 01, pp. 17–33, 2023. (**Invited Paper**)
- [J81] Ulf Schlichtmann, Bing Li, Bei Yu, Raviv Gal, “[Guest Editors’ Introduction: Special Issue on Machine Learning for CAD/EDA](#)”, *IEEE Design & Test*, vol. 40, no. 01, pp. 5–7, 2023.

- [J80] Ziyang Yu, Guojin Chen, Yuzhe Ma, Bei Yu, “[A GPU-enabled Level Set Method for Mask Optimization](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 42, no. 02, pp. 594–605, 2023.
- [J79] Qi Xu, Junpeng Wang, Qi Sun, Bo Yuan, Song Chen, Bei Yu, Yi Kang, Feng Wu, “[Reliability-Driven Memristive Crossbar Design in Neuromorphic Computing Systems](#)”, IEEE Transactions on Automation Science and Engineering (**TASE**), vol. 20, no. 01, pp. 74–87, 2023.
- [J78] Jianwang Zhai, Chen Bai, Binwu Zhu, Yici Cai, Qiang Zhou, Bei Yu, “[McPAT-Calib: A RISC-V BOOM Microarchitecture Power Modeling Framework](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 42, no. 01, pp. 243–256, 2023.
- [J77] Hao Geng, Tinghuan Chen, Yuzhe Ma, Binwu Zhu, Bei Yu, “[PTPT: Physical Design Tool Parameter Tuning via Multi-Objective Bayesian Optimization](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 42, no. 01, pp. 178–189, 2023.
- [J76] Tinghuan Chen, Bin Duan, Qi Sun, Meng Zhang, Guoqing Li, Hao Geng, Qianru Zhang, Bei Yu, “[An Efficient Sharing Grouped Convolution via Bayesian Learning](#)”, IEEE Transactions on Neural Networks and Learning Systems (**TNNLS**), vol. 33, no. 12, pp. 7367–7379, 2022.
- [J75] Qi Sun, Xufeng Yao, Arjun Ashok Rao, Bei Yu, Shiyan Hu, “[Counteracting Adversarial Attacks in Autonomous Driving](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 12, pp. 5193–5206, 2022.
- [J74] Xiaodong Wang, Changhao Yan, Yuzhe Ma, Bei Yu, Fan Yang, Dian Zhou, Xuan Zeng, “[Analog Circuit Yield Optimization via Freeze-Thaw Bayesian Optimization Technique](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 11, pp. 4887–4900, 2022.
- [J73] Wei Li, Yuzhe Ma, Yibo Lin, Bei Yu, “[Adaptive Layout Decomposition with Graph Embedding Neural Networks](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 11, pp. 5030–5042, 2022.
- [J72] Qi Xu, Hao Geng, Tianming Ni, Song Chen, Bei Yu, Xiaoqing Wen, “[Fortune: A New Fault-Tolerance TSV Configuration in Router-based Redundancy Structure](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 10, pp. 3182–3187, 2022.
- [J71] Martin Rapp, Hussam Amrouch, Yibo Lin, Bei Yu, David Z. Pan, Marilyn Wolf, Jorg Henkel, “[MLCAD: A Survey of Research in Machine Learning for CAD](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 10, pp. 3162–3181, 2022. (**Keynote Paper**)
- [J70] Guojin Chen, Wanli Chen, Qi Sun, Yuzhe Ma, Haoyu Yang, Bei Yu, “[DAMO: Deep Agile Mask Optimization for Full Chip Scale](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 9, pp. 3118–3131, 2022.
- [J69] Hao Geng, Yuzhe Ma, Qi Xu, Jin Miao, Subhendu Roy, Bei Yu, “[High-Speed Adder Design Space Exploration via Graph Neural Processes](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 8, pp. 2657–2670, 2022.
- [J68] Hao Geng, Haoyu Yang, Lu Zhang, Fan Yang, Xuan Zeng, Bei Yu, “[Hotspot Detection via Attention-based Deep Layout Metric Learning](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 8, pp. 2685–2698, 2022.
- [J67] Bentian Jiang, Lixin Liu, Yuzhe Ma, Bei Yu, Evangeline F.Y. Young, “[Neural-ILT 2.0: Migrating ILT to Domain-specific and Multi-task-enabled Neural Network](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 8, pp. 2671–2684, 2022.
- [J66] Yiyang Jiang, Fan Yang, Bei Yu, Dian Zhou, Xuan Zeng, “[Efficient Layout Hotspot Detection via Neural Architecture Search](#)”, ACM Transactions on Design Automation of Electronic Systems (**TODAES**), vol. 27, no. 6, 2022.
- [J65] Tinghuan Chen, Qi Sun, Canhui Zhan, Changze Liu, Huatao Yu, Bei Yu, “[Deep H-GCN: Fast Analog IC Aging-induced Degradation Estimation](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 7, pp. 1990–2003, 2022.
- [J64] Yibo Lin, Xiaohan Gao, Tinghuan Chen, Bei Yu, “Machine learning for digital circuit backend design”, Micro/nano Electronics and Intelligent Manufacturing, vol. 2, no. 3, 2022. (in Chinese)
- [J63] Qi Sun, Tinghuan Chen, Siting Liu, Jianli Chen, Hao Yu, Bei Yu, “[Correlated Multi-objective Multi-fidelity Optimization for HLS Directives Design](#)”, ACM Transactions on Design Automation of Electronic Systems (**TODAES**), vol. 27, no. 4, 2022.
- [J62] Wei Zhong, Shuxiang Hu, Yuzhe Ma, Haoyu Yang, Xiuyuan Ma, Bei Yu, “[Deep Learning-Driven Simultaneous Layout Decomposition and Mask Optimization](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 3, pp. 709–722, 2022.
- [J61] Ran Chen, Wei Zhong, Haoyu Yang, Hao Geng, Fan Yang, Xuan Zeng, Bei Yu, “[Faster Region-based Hotspot Detection](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (**TCAD**), vol. 41, no. 3, pp. 669–680, 2022.

- [J60] Haoyu Yang, Shuhe Li, Wen Chen, Piyush Pathak, Frank Gennari, Ya-Chieh Lai, Bei Yu, “[DeePattern: Layout Pattern Generation with Transforming Convolutional Auto-Encoder](#)”, IEEE Transactions on Semiconductor Manufacturing (TSM), vol. 35, no. 1, pp. 67–77, 2022. **(Best Paper Award)**
- [J59] Haocheng Li, Wing-Kai Chow, Gengjie Chen, Bei Yu, and Evangeline F.Y. Young, “[Pin-Accessible Legalization for Mixed-Cell-Height Circuits](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 41, no. 1, pp. 143–154, 2022.
- [J58] Wei Li, Yuzhe Ma, Qi Sun, Lu Zhang, Yibo Lin, Iris Hui-Ru Jiang, Bei Yu, David Z. Pan, “[OpenMPL: An Open Source Layout Decomposer](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 40, no. 11, pp. 2331–2344, 2021.
- [J57] Haocheng Li, Satwik Patnaik, Mohammed Ashraf, Haoyu Yang, Johann Knechtel, Bei Yu, Ozgur Sinanoglu, Evangeline F.Y. Young, “[Deep Learning Analysis for Split Manufactured Layouts with Routing Perturbation](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 40, no. 10, pp. 1995–2008, 2021.
- [J56] Guyue Huang, Jingbo Hu, Yifan He, Jialong Liu, Mingyuan Ma, Zhaoyang Shen, Juejian Wu, Yuanfan Xu, Hengrui Zhang, Kai Zhong, Xuefei Ning, Yuzhe Ma, Haoyu Yang, Bei Yu, Huazhong Yang, Yu Wang, “[Machine Learning for Electronic Design Automation: A Survey](#)”, ACM Transactions on Design Automation of Electronic Systems (TODAES), vol. 26, no. 5, 2021.
- [J55] Yiyang Jiang, Fan Yang, Bei Yu, Dian Zhou, Xuan Zeng, “[Efficient Layout Hotspot Detection via Binarized Residual Neural Network Ensemble](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 40, no. 7, pp. 1476–1488, 2021.
- [J54] Haoyu Yang, Shuhe Li, Cyrus Tabery, Bingqing Lin, Bei Yu, “[Bridging the Gap Between Layout Pattern Sampling and Hotspot Detection via Batch Active Learning](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 40, no. 7, pp. 1464–1475, 2021.
- [J53] Tinghuan Chen, Bingqing Lin, Hao Geng, Shiyan Hu, Bei Yu, “[Leveraging Spatial Correlation for Sensor Drift Calibration in Smart Building](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 40, no. 7, pp. 1273–1286, 2021.
- [J52] Haoyu Yang, Wei Zhong, Yuzhe Ma, Hao Geng, Ran Chen, Wanli Chen, Bei Yu, “[VLSI Mask Optimization: From Shallow To Deep Learning](#)”, Integration, the VLSI Journal, vol. 77, Mar., pp. 96–103, 2021.
- [J51] Xiaowei Xu, Xinyi Zhang, Bei Yu, Xiaobo Sharon Hu, Christopher Rowen, Jingtong Hu, Yiyu Shi, “[DAC-SDC Low Power Object Detection Challenge for UAV Applications](#)”, IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), vol. 43, no. 2, pp. 392–403, 2021.
- [J50] Yuzhe Ma, Wei Zhong, Shuxiang Hu, Jih-Rong Gao, Jian Kuang, Jin Miao, Bei Yu, “[A Unified Framework for Simultaneous Layout Decomposition and Mask Optimization](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 39, no. 12, pp. 5069–5082, 2020.
- [J49] Grace Li Zhang, Bing Li, Meng Li, Bei Yu, David Z. Pan, Michaela Brunner, Georg Sigl, Ulf Schlichtmann, “[TimingCamouflage+: Netlist Security Enhancement with Unconventional Timing](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 39, no. 12, pp. 4482–4495, 2020.
- [J48] Hao Geng, Wei Zhong, Haoyu Yang, Yuzhe Ma, Joydeep Mitra, Bei Yu, “[SRAF Insertion via Supervised Dictionary Learning](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 39, no. 10, pp. 2849–2859, 2020.
- [J47] Haoyu Yang, Shuhe Li, Zihao Deng, Yuzhe Ma, Bei Yu, and Evangeline F. Y. Young, “[GAN-OPC: Mask Optimization with Lithography-guided Generative Adversarial Nets](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 39, no. 10, pp. 2822–2834, 2020.
- [J46] Kang Liu, Haoyu Yang, Yuzhe Ma, Benjamin Tan, Bei Yu, Evangeline F. Y. Young, Ramesh Karri, Siddharth Garg, “[Adversarial Perturbation Attacks on ML-based CAD: A Case Study on CNN-based Lithographic Hotspot Detection](#)”, ACM Transactions on Design Automation of Electronic Systems (TODAES), vol. 25, no. 5, 2020.
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- [J44] Xingquan Li, Bei Yu, Jianli Chen, Wenxing Zhu, “[DSA Guiding Template Assignment with Multiple Redundant Via and Dummy Via Insertion](#)”, Integration, the VLSI Journal, vol. 70, Jan., pp. 32–42, 2020.
- [J43] Yuzhe Ma, Subhendu Roy, Jin Miao, Jiamin Chen, Bei Yu, “[Cross-layer Optimization for High Speed Adders: A Pareto Driven Machine Learning Approach](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), vol. 38, no. 12, pp. 2298–2311, 2019.
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- [C81] Haocheng Li, Satwik Patnaik, Abhrajit Sengupta, Haoyu Yang, Johann Knechtel, Bei Yu, Evangeline F. Y. Young, Ozgur Sinanoglu, “Attacking Split Manufacturing from a Deep Learning Perspective”, ACM/IEEE Design Automation Conference (DAC), pp. 135:1–135:6, Las Vegas, June 2–6, 2019.
- [C80] Bentian Jiang, Xiaopeng Zhang, Ran Chen, Gengjie Chen, Peishan Tu, Wei Li, Evangeline F. Y. Young, Bei Yu, “FIT: Fill Insertion Considering Timing”, ACM/IEEE Design Automation Conference (DAC), pp. 221:1–221:6, Las Vegas, June 2–6, 2019.
- [C79] Haoyu Yang, Piyush Pathak, Frank Gennari, Ya-Chieh Lai, Bei Yu, “Hotspot Detection using Squish-Net”, SPIE Intl. Symp. Advanced Lithography Conference, San Jose, CA, Feb. 24–28, 2019.
- [C78] Haoyu Yang, Piyush Pathak, Frank Gennari, Ya-Chieh Lai, Bei Yu, “Detecting Multi-Layer Layout Hotspots with Adaptive Squish Patterns”, IEEE/ACM Asian and South Pacific Design Automation Conference (ASPDAC), pp. 299–304, Tokyo, Jan. 21–24, 2019. (Invited Paper)
- [C77] Xingquan Li, Bei Yu, Jianli Chen, Wenxing Zhu, “A Local Optimal Method on DSA Guiding Template Assignment with Redundant Dummy Via Insertion”, IEEE/ACM Asian and South Pacific Design Automation Conference (ASPDAC), pp. 305–310, Tokyo, Jan. 21–24, 2019. (Invited Paper)
- [C76] Hao Geng, Haoyu Yang, Yuzhe Ma, Joydeep Mitra, Bei Yu, “SRAF Insertion via Supervised Dictionary Learning”, IEEE/ACM Asian and South Pacific Design Automation Conference (ASPDAC), pp. 406–411, Tokyo, Jan. 21–24, 2019. (Best Paper Award Nomination)
- [C75] Zheng Zhao, Derong Liu, Meng Li, Zhoufeng Ying, Biying Xu, Lu Zhang, Bei Yu, Ray T. Chen, David Z. Pan, “Hardware-software Co-design of Slimmed Optical Neural Networks”, IEEE/ACM Asian and South Pacific Design Automation Conference (ASPDAC), pp. 705–710, Tokyo, Jan. 21–24, 2019.

- [C74] Hao Geng, Haoyu Yang, Bei Yu, Xingquan Li, Xuan Zeng, “[Sparse VLSI Layout Feature Extraction: A Dictionary Learning Approach](#)”, IEEE Computer Society Annual Symposium on VLSI (ISVLSI), pp. 488–493, Hong Kong, July 9–11, 2018. (**Invited Paper**)
- [C73] Haoyu Yang, Shuhe Li, Yuzhe Ma, Bei Yu, Evangeline F. Y. Young, “[GAN-OPC: Mask Optimization with Lithography-guided Generative Adversarial Nets](#)”, ACM/IEEE Design Automation Conference (**DAC**), pp. 136:1–136:6, San Francisco, June 24–28, 2018.
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- [C71] Fengxian Jiao, Sheqin Dong, Bei Yu, Bing Li, Ulf Schlichtmann, “[Thermal-Aware Placement and Routing for 3D Optical Networks-on-Chips](#)”, IEEE International Symposium on Circuits and Systems (ISCAS), pp. 1–4, Florence, May 27–30, 2018.
- [C70] Qi Xu, Song Chen, Bei Yu, Feng Wu, “[Memristive Crossbar Mapping for Neuromorphic Computing Systems on 3D IC](#)”, ACM Great Lakes Symposium on VLSI (GLSVLSI), pp. 451–454, Chicago, IL, May 23–25, 2018.
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- [C67] Meng Li, Bei Yu, Yibo Lin, Xiaoqing Xu, Wuxi Li, David Z. Pan, “[A Practical Split Manufacturing Framework for Trojan Prevention via Simultaneous Wire Lifting and Cell Insertion](#)”, IEEE/ACM Asian and South Pacific Design Automation Conference (**ASPDAC**), pp. 265–270, Jeju Island, Jan. 22–25, 2018.
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- [C56] Jiaojiao Ou, Bei Yu, Xiaoqing Xu, Joydeep Mitra, Yibo Lin, David Z. Pan, “[DSAR: DSA aware Routing with Simultaneous DSA Guiding Pattern and Double Patterning Assignment](#)”, ACM International Symposium on Physical Design (**ISPD**), pp. 91–98, Portland, Mar. 19–22, 2017.
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- [C53] Jian Kuang, Evangeline F. Y. Young, Bei Yu, “[Incorporating Cut Redistribution with Mask Assignment to Enable 1D Gridded Design](#)”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), pp. 48:1–48:8, Austin, Nov. 7–10, 2016.
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- [C43] Yibo Lin, Xiaoqing Xu, Bei Yu, Ross Baldick, David Z. Pan, “[Triple/Quadruple Patterning Layout Decomposition via Novel Linear Programming and Iterative Rounding](#)”, SPIE Intl. Symp. Advanced Lithography Conference, San Jose, CA, Feb. 21–25, 2016. **(Best Student Paper Award)**
- [C42] Tetsuaki Matsunawa, Bei Yu, David Z. Pan, “[Laplacian Eigenmaps and Bayesian Clustering Based Layout Pattern Sampling and Its Applications to Hotspot Detection and OPC](#)”, IEEE/ACM Asian and South Pacific Design Automation Conference (**ASPDAC**), pp. 679–684, Macau, Jan. 25–28, 2016.
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- [C39] Yibo Lin, Bei Yu, Biying Xu, David Z. Pan, “[Triple Patterning Aware Detailed Placement Toward Zero Cross-Row Middle-of-Line Conflict](#)”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), pp. 396–403, Austin, Nov.2–6, 2015.
- [C38] David Z. Pan, Lars Liebmann, Bei Yu, Xiaoqing Xu, Yibo Lin, “[Pushing Multiple Patterning in Sub-10nm: Are We Ready?](#)”, ACM/IEEE Design Automation Conference (**DAC**), pp. 197:1–197:6, San Francisco, June 7–11, 2015. **(Invited Paper)**
- [C37] Xiaoqing Xu, Bei Yu, Jih-Rong Gao, Che-Lun Hsu, David Z. Pan, “[PARR: Pin Access Planning and Regular Routing for Self-Aligned Double Patterning](#)”, ACM/IEEE Design Automation Conference (**DAC**), pp. 28:1–28:6, San Francisco, June 7–11, 2015.
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- [C35] Wei Ye, Bei Yu, Yong-Chan Ban, Lars Liebmann, David Z. Pan, “[Standard Cell Layout Regularity and Pin Access Optimization Considering Middle-of-Line](#)”, ACM Great Lakes Symposium on VLSI (GLSVLSI), pp. 289–294, Pittsburgh, PA, May 20–22, 2015.
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- [C33] Tetsuaki Matsunawa, Bei Yu, David Z. Pan, “[Optical proximity correction with hierarchical Bayes model](#)”, SPIE Intl. Symp. Advanced Lithography - Optical Microlithography XXVIII, San Jose, CA, Feb. 22–26, 2015.
- [C32] Tetsuaki Matsunawa, Jih-Rong Gao, Bei Yu, David Z. Pan, “[A new lithography hotspot detection framework based on AdaBoost classifier and simplified feature extraction](#)”, SPIE Intl. Symp. Advanced Lithography - Design-Process-Technology Co-optimization for Manufacturability IX, San Jose, CA, Feb. 22–26, 2015.
- [C31] Xiaoqing Xu, Brian Cline, Greg Yeric, Bei Yu, David Z. Pan, “[A systematic framework for evaluating standard cell middle-of-line \(MOL\) robustness for multiple patterning](#)”, SPIE Intl. Symp. Advanced Lithography - Design-Process-Technology Co-optimization for Manufacturability IX, San Jose, CA, Feb. 22–26, 2015.
- [C30] Bei Yu, David Z. Pan, Tetsuaki Matsunawa, Xuan Zeng, “[Machine Learning and Pattern Matching in Physical Design](#)”, IEEE/ACM Asian and South Pacific Design Automation Conference (**ASPDAC**), pp. 286–293, Japan, Jan. 19–22, 2015. (**Invited Paper**)
- [C29] Jiwoo Pak, Bei Yu, David Z. Pan, “[Electromigration-aware Redundant Via Insertion](#)”, IEEE/ACM Asian and South Pacific Design Automation Conference (**ASPDAC**), pp. 544–549, Japan, Jan. 19–22, 2015.
- [C28] Bei Yu, Gilda Garretton, David Z. Pan, “[Layout Compliance for Triple Patterning Lithography: An Iterative Approach](#)”, SPIE/BACUS Photomask Symposium, Monterey, CA, Sept. 16–18, 2014. (**Invited Paper**)
- [C27] Bei Yu, David Z. Pan, “[Layout Decomposition for Quadruple Patterning Lithography and Beyond](#)”, SRC Techcon Conference, Austin, TX, Sept. 7–9, 2014.
- [C26] Jih-Rong Gao, Xiaoqing Xu, Bei Yu, David Z. Pan, “[MOSAIC: Mask Optimizing Solution With Process Window Aware Inverse Correction](#)”, ACM/IEEE Design Automation Conference (**DAC**), pp. 52:1–52:6, San Francisco, June 1–5, 2014. (**Best Paper Award Nomination**)
- [C25] Bei Yu, David Z. Pan, “[Layout Decomposition for Quadruple Patterning Lithography and Beyond](#)”, ACM/IEEE Design Automation Conference (**DAC**), pp. 53:1–53:6, San Francisco, June 1–5, 2014.
- [C24] Xiaoqing Xu, Brian Cline, Greg Yeric, Bei Yu, David Z. Pan, “[Self-Aligned Double Patterning Aware Pin Access and Standard Cell Layout Co-Optimization](#)”, ACM International Symposium on Physical Design (**ISPD**), pp. 101–108, Petaluma, March 30–April 2, 2014.
- [C23] Jih-Rong Gao, Bei Yu, Duo Ding, David Z. Pan, “[Accurate lithography hotspot detection based on PCA-SVM classifier with hierarchical data clustering](#)”, SPIE Intl. Symp. Advanced Lithography - Design-Process-Technology Co-optimization for Manufacturability VIII, San Jose, CA, Feb. 23–27, 2014.
- [C22] Bei Yu, Jih-Rong Gao, Xiaoqing Xu, David Z. Pan, “[Bridging the Gap from Mask to Physical Design for Multiple Patterning Lithography](#)”, SPIE Intl. Symp. Advanced Lithography - Design-Process-Technology Co-optimization for Manufacturability VIII, San Jose, CA, Feb. 23–27, 2014. (**Invited Paper**)
- [C21] Jih-Rong Gao, Bei Yu, David Z. Pan, “[Self-Aligned Double Patterning Layout Decomposition with Complementary E-Beam Lithography](#)”, IEEE/ACM Asian and South Pacific Design Automation Conference (**ASPDAC**), pp. 143–148, Singapore, Jan. 20–23, 2014.
- [C20] Bei Yu, Xiaoqing Xu, Jih-Rong Gao, David Z. Pan, “[Methodology for Standard Cell Compliance and Detailed Placement for Triple Patterning Lithography](#)”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), pp. 349–356, San Jose, Nov. 18–21, 2013. (**William J. McCalla Best Paper Award**)
- [C19] Bei Yu, Yen-Hung Lin, Gerard Luk-Pat, Duo Ding, Kevin Lucas, David Z. Pan, “[A High-Performance Triple Patterning Layout Decomposer with Balanced Density](#)”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), pp. 163–169, San Jose, Nov. 18–21, 2013.
- [C18] Jih-Rong Gao, Bei Yu, Duo Ding, David Z. Pan, “[Lithography Hotspot Detection and Mitigation in Nanometer VLSI](#)”, IEEE International Conference on ASIC (ASICON), pp. 1–4, Shenzhen, China, Oct. 28–31, 2013. (**Invited Paper**)
- [C17] Bei Yu, Kun Yuan, Jih-Rong Gao, David Z. Pan, “[E-BLOW: E-Beam Lithography Overlapping aware Stencil Planning for MCC System](#)”, ACM/IEEE Design Automation Conference (**DAC**), pp. 70:1–70:7, Austin, June 2–6, 2013.
- [C16] Bei Yu, Jih-Rong Gao, David Z. Pan, “[Triple-patterning lithography \(TPL\) layout decomposition using end-cutting](#)”, SPIE Intl. Symp. Advanced Lithography, San Jose, CA, Feb. 24–28, 2013.
- [C15] Jih-Rong Gao, Bei Yu, Ru Huang, David Z. Pan, “[Self-aligned Double Patterning Friendly Configuration for Standard Cell Library Considering Placement](#)”, SPIE Intl. Symp. Advanced Lithography, San Jose, CA, Feb. 24–28, 2013.

- [C14] Bei Yu, Jih-Rong Gao, David Z. Pan, “[L-Shape based Layout Fracturing for E-Beam Lithography](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (**ASPDAC**), pp. 249–254, Japan, Jan. 22–25, 2013. (**Best Paper Award Nomination**)
- [C13] Bei Yu, Jih-Rong Gao, Duo Ding, Yongchan Ban, Jae-Seok Yang, Kun Yuan, Minsik Cho, David Z. Pan, “[Dealing with IC Manufacturability in Extreme Scaling](#)”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), pp. 240–242, San Jose, Nov. 5–8, 2012. (**Embedded Tutorial paper**)
- [C12] Yen-Hung Lin, Bei Yu, David Z. Pan, Yih-Lang Li, “[TRIAD: A Triple Patterning Lithography Aware Detailed Router](#)”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), pp. 123–129, San Jose, Nov. 5–8, 2012.
- [C11] David Z. Pan, Jih-Rong Gao, Bei Yu, “[VLSI CAD for Emerging Nanolithography](#)”, International Symposium on VLSI Design, Automation and Test (VLSI-DAT), pp. 1–4, 2012. (**Invited Paper**)
- [C10] Kevin Lucas, Chris Cork, Bei Yu, Gerry Luk-Pat, Ben Painter, David Z. Pan, “[Implications of triple patterning for 14 nm node design and patterning](#)”, SPIE Advanced Lithography Symposium Design for Manufacturability through Design-Process Integration VI (Conference 8327), Feb. 2012. (**Keynote Paper**)
- [C9] Duo Ding, Bei Yu, Joydeep Ghosh, David Z. Pan, “[EPIC: Efficient Prediction of IC Manufacturing Hotspots With A Unified Meta-Classification Formulatio](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (**ASPDAC**), pp. 263–270, Sydney, Jan. 30–Feb. 3, 2012. (**Best Paper Award**)
- [C8] Duo Ding, Bei Yu, David Z. Pan, “[GLOW: A Global Router for Low-Power Thermal-reliable Interconnect Synthesis using Photonic Wavelength Multiplexing](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (**ASPDAC**), pp. 621–626, Sydney, Jan. 30–Feb. 3, 2012.
- [C7] Bei Yu, Kun Yuan, Boyang Zhang, Duo Ding, David Z. Pan, “[Triple Patterning Lithography Layout Decomposition](#)”, IEEE/ACM International Conference on Computer-Aided Design (**ICCAD**), pp. 1–8, San Jose, Nov. 2011. (**William J. McCalla Best Paper Award Nomination**)
- [C6] Bei Yu, Sheqin Dong, Yuchun Ma, Tao Lin, Yu Wang, Song Chen, Satoshi Goto, “[Network Flow-based Simultaneous Retiming and Slack Budgeting for Low Power Design](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (**ASPDAC**), pp. 473–478, Japan, Jan. 2011.
- [C5] Wei Zhong, Bei Yu, Song Chen, Takeshi Yoshimura, Sheqin Dong, Satoshi Goto, “[Application-Specific Network-on-Chip Synthesis: Cluster Generation and Network Component Insertion](#)”, IEEE International Symposium on Quality Electronic Design (ISQED), pp. 144–149, Santa Clara, CA, March 14–16, 2011.
- [C4] Bei Yu, Sheqin Dong, Song Chen, Satoshi Goto, “[Floorplanning and Topology Generation for Application-Specific Network-on-Chip](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (**ASPDAC**), pp. 535–540, Taipei, Jan. 2010.
- [C3] Tao Lin, Sheqin Dong, Song Chen, Bei Yu, Satoshi Goto, “[A Revisit to Voltage Partitioning Problem](#)”, ACM Great Lakes Symposium on VLSI (GLSVLSI), pp. 115–118, Providence, RI, May 16–18, 2010.
- [C2] Bei Yu, Sheqin Dong, Satoshi Goto, “[Multi-Voltage and Level-Shifter Assignment Driven Floorplanning](#)”, IEEE International Conference on ASIC (ASICON), pp. 1264–1267, Changsha, Oct. 20–23, 2009.
- [C1] Bei Yu, Sheqin Dong, Song Chen, Satoshi Goto, “[Voltage-Island Driven Floorplanning Considering Level-Shifter Positions](#)”, ACM Great Lakes Symposium on VLSI (GLSVLSI), pp. 51–56, Boston, MA, May 10–12, 2009.

Books / Book Chapters

- [B4] Haoyu Yang, Yibo Lin, Bei Yu, “Machine Learning for Mask Synthesis and Verification”, in Machine Learning Applications in Electronic Design Automation, Mark Ren eds., Springer, 2022.
- [B3] Shiyuan Hu, Bei Yu, “[Big Data Analytics for Cyber-Physical Systems](#)”, Springer, 2020.
- [B2] Bei Yu, David Z. Pan, “[Design for Manufacturability with Advanced Lithography](#)”, Springer, 2016.
- [B1] Bei Yu, David Z. Pan, “[Layout Decomposition for Triple Patterning](#)”, in Encyclopedia of Algorithms, M.-Y. Kao eds., Springer, 2015.

Dissertation

- [PHD] Bei Yu, “[Design for Manufacturing with Advanced Lithography](#)”, University of Texas at Austin, August 2014. (**EDAA Outstanding Dissertation Award**)

ADVISING AND SUPERVISORSHIP

Current Students:

| | | |
|--------------|------|---------------------|
| Yuxuan Zhao | Ph.D | Fall 2021 – Present |
| Ziyi Wang | Ph.D | Fall 2021 – Present |
| Hongduo Liu | Ph.D | Fall 2021 – Present |
| Xufeng Yao | Ph.D | Fall 2021 – Present |
| Xinyun Zhang | Ph.D | Fall 2021 – Present |
| Guojin Chen | Ph.D | Fall 2021 – Present |
| Ziyang Yu | Ph.D | Fall 2021 – Present |

| | | |
|--------------|------|---------------------|
| Zixiao Wang | Ph.D | Fall 2022 – Present |
| Peng Xu | Ph.D | Fall 2022 – Present |
| Shixin Chen | Ph.D | Fall 2022 – Present |
| Su Zheng | Ph.D | Fall 2022 – Present |
| Yu Zhang | Ph.D | Fall 2022 – Present |
| Shuo Yin | Ph.D | Fall 2022 – Present |
| Fangzhou Liu | Ph.D | Fall 2023 – Present |
| Lancheng Zou | Ph.D | Fall 2023 – Present |
| Zehua Pei | Ph.D | Fall 2023 – Present |
| Yuan Pu | Ph.D | Fall 2023 – Present |
| Jiaxi Jiang | Ph.D | Fall 2023 – Present |
| Mingjun Li | Ph.D | Fall 2023 – Present |
| Yuntao Lu | Ph.D | Fall 2023 – Present |
| Yuhao Ji | Ph.D | Fall 2024 – Present |
| Haoyuan Wu | Ph.D | Fall 2024 – Present |
| Yifan Shi | Ph.D | Fall 2024 – Present |
| Mengjia Dai | Ph.D | Fall 2024 – Present |
| Jiahao Xu | Ph.D | Fall 2024 – Present |

Co-supervised:

| | | |
|----------------|-----------|---------------------|
| Shaoteng Liu | Ph.D | Fall 2021 – Present |
| Chengyao Wang | Ph.D | Fall 2022 – Present |
| Wendong Xu | Ph.D @HKU | Fall 2023 – Present |
| Mingkang Zhu | Ph.D | Fall 2023 – Present |
| Sitong Wu | Ph.D | Fall 2023 – Present |
| Bin Xia | Ph.D | Fall 2023 – Present |
| Zhongshen Zeng | Ph.D | Fall 2023 – Present |

Supervisions Completed:

| | | |
|---------------|------------|--|
| Binwu Zhu | PhD 2024 | Associate Professor @Southeast Univ |
| Yang Bai | PhD 2024 | Postdoc @CUHK |
| Chen Bai | PhD 2024 | Postdoc @HKUST |
| Siting Liu | PhD 2024 | Huawei |
| Wenqian Zhao | PhD 2024 | Huawei Noah |
| Peiyu Liao | PhD 2024 | Huawei Noah |
| Wanli Chen | PhD 2024 | point72 |
| Zhuolun He | PhD 2023 | Postdoc @CUHK |
| Lu Zhang | MPhil 2023 | |
| Qi Sun | PhD 2022 | Postdoc @Cornell → ZJU100 Young Professor @Zhejiang Univ |
| Ran Chen | PhD 2022 | Huawei Noah |
| Hao Geng | PhD 2021 | Postdoc @CUHK → Assistant Professor @ShanghaiTech |
| Tinghuan Chen | PhD 2021 | Postdoc @CUHK → Assistant Professor @CUHK(SZ) |
| Wei Li | MPhil 2021 | PhD @CMU |
| Yuzhe Ma | PhD 2020 | Huawei → Assistant Professor @HKUST(GZ) |
| Haoyu Yang | PhD 2020 | Postdoc @CUHK → Cadence → nVIDIA |

Post-Doc Supervisions:

| | | |
|---------------|-------------------|-------------------------------|
| Zhuolun He | 2023/09 – | |
| Tinghuan Chen | 2021/09 – 2022/12 | now Faculty @CUHK-SZ |
| Hao Geng | 2021/09 – 2022/03 | now Faculty @ShanghaiTech |
| Haoyu Yang | 2020/08 – 2021/03 | now Research Scientist@nVIDIA |

Ph.D. Defense Committees Served: 2016: Jian Kuang; 2017: Yannan Liu, Wen Zong; 2018: Lingxiao Wei, Wing-Kai Chow; 2019: Gengjie Chen, Chak-Wa Pui; 2020: Ye Tian; 2021: Shujun Wang, Yanning Zhou; Bentian Jiang; Jingsong Chen; 2022: Jiequan Cui, Yilun Chen, Xiaogang Xu, Zhuotao Tian, Dan Zheng, Jinwei Liu, Da Yan (HKUST); 2023: Min Li, Lixin Liu, Fangzhou Wang, Xiangzhong Luo (NTU), Yanzhi Xu (CUHK-SZ), Yong Zhang (CUHK-SZ), Peipei Zhu (CUHK-SZ)

PROFESSIONAL SERVICE

University Committee Assignments

- Chair, Internship and Industry Liaison, 2023–present.
- Member, CUHK CSE Department Graduate Panel, 2016–2023.
- Member, CUHK CSE Department Curriculum Committee, 2015–present.

Editorial Board

- **Editor**, Technical Committee on Cyber-Physical Systems (TC-CPS) Newsletter, 2019–present.
- Associate Editor, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2024–present.
- Associate Editor, ACM Transactions on Design Automation of Electronic Systems (TODAES), 2020–present.
- Associate Editor, Integration, the VLSI Journal, 2016–present.
- Associate Editor, IET Cyber-Physical Systems: Theory & Applications, 2016–2023.

Guest Editor

- IEEE Consumer Electronics Magazine Special Issue on ISVLSI
- IEEE Design & Test Special Issue on Machine Learning for CAD / EDA
- IEEE Transactions on Sustainable Computing (TSUSC) Special Issue on Sustainable Cyber-Physical Systems
- Integration, the VLSI Journal Special Issue on Emerging Technologies for System Level Design and Interconnects.
- Integration, the VLSI Journal Special Issue on ASP-DAC 2017.
- Journal of Parallel and Distributed Computing (JPDC) Special Issue on Scalable Cyber-Physical Systems

Selected Organizers

- **Chair**, IEEE Technical Committee on Secure and Dependable Measurement (TC-SDM), 2021–Present.
- **Chair**, ACM Student Research Competition at ICCAD, 2018, 2019.
- **Chair**, EDathon, 2022.
- Assistant Vice President Publicity, IEEE CEDA, 2024–Present.
- Organizing Committee, IEEE CEDA Hong Kong Chapter, 2017–present.
- Organizing Committee, International System Design Contest at DAC, 2018, 2019.
- Organizing Committee, EDathon, 2017, 2018, 2019, 2020, 2021.

Selected PC Member

- AAAI Conference on Artificial Intelligence (AAAI), 2023, 2024, 2025.
- ACM/IEEE Workshop on Machine Learning for CAD (MLCAD), 2019 (TPC Co-Chair), 2020, 2021.
- ACM/IEEE Design Automation Conference (DAC), 2016, 2017, 2018.
- ACM International Symposium on Physical Design (ISPD), 2017, 2018, 2019, 2020, 2023, 2024, 2025.
- ACM Great Lakes Symposium on VLSI (GLSVLSI), 2016, 2017, 2018 (CAD Track Chair).
- IEEE/ACM International Conference On Computer Aided Design (ICCAD), 2016, 2017, 2018, 2024.
- IEEE/ACM Proceedings Design, Automation and Test in Europe (DATE), 2020, 2021.
- IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), 2018, 2019, 2020, 2021, 2022 (DFM track chair), 2024 (DFM track chair), 2025 (DFM track chair).
- IEEE International Conference on Computer Design (ICCD), 2021, 2022.
- International Joint Conference on Artificial Intelligence (IJCAI), 2020.