

# YIBO LIN

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## RESEARCH INTERESTS

Modeling and optimization in VLSI CAD, machine learning applications, and heterogeneous computing

## EDUCATION

<b>University of Texas at Austin, Texas, USA</b>	Aug. 2013 – May 2018
Ph.D., Department of Electrical and Computer Engineering	
Advisor: David Z. Pan	
Thesis: Bridging Design and Manufacturing Gap through Machine Learning and Machine-Generated Layout	
<b>Shanghai Jiao Tong University, Shanghai, China</b>	Sep. 2009 – Jun. 2013
B.S., Department of Microelectronics	

## EXPERIENCE

<b>Peking University, Beijing, China</b>	Aug. 2025 – present
Associate Professor	
<b>Peking University, Beijing, China</b>	Jul. 2019 – Jul. 2025
Assistant Professor	
Department of Design Automation and Computing System, School of Integrated Circuits (since Nov. 2021)	
Center for Energy-efficient Computing and Applications (CECA), School of Electronics Engineering and Computer Science	
<b>University of Texas at Austin, Texas, U.S.</b>	Jun. 2018 – Jun. 2019
Postdoc	
Department of Electrical and Computer Engineering	

## TEACHING EXPERIENCE

Fundamental Algorithms for Engineering in Integrated Circuits		
Instructor	Graduate	2023–2024
Design Automation and Computing System		
Instructor	Graduate	2022–2024
Optimization and Machine Learning in VLSI Design Automation		
Instructor	Undergraduate	2021–2024
Introduction to Computing B		
Instructor	Undergraduate	2020–2022

## AWARDS AND HONORS

Best Paper Award Nomination	ICCAD	2025
Best Paper Award Nomination	DAC	2025
Honorable Mention ( $\times 2$ )	ISEDA	2025
Best Paper Award Nomination	ASPDAC	2025
Best Paper Award Nomination	ICCAD	2024
Best Paper Award & Honorable Mention	ISEDA	2024
Early Career Award (only one per year)	CCF Technical Committee in IC	2023
Inaugural Best Reviewer Award	ICCAD	2023
Best Paper Award (4/205)	DATE	2023
Best Paper Award (4/249)	DATE	2022
Best Paper Award Nomination	ICCAD	2022
Donald O. Pederson Best Paper Award (2/3495 in 4 years)	TCAD	2021
Best Paper Award	ISPD	2020
Best Paper Award Nomination	ASPDAC	2020
Best Paper Award (1/201) & Nomination (5/201)	DAC	2019
Best Paper Award Nomination	ISPD	2019
Inaugural Best Paper Award	Integration, the VLSI Journal	2018
Franco Cerrina Memorial Best Student Paper Award	SPIE	2016
A. Richard Newton Young Student Fellow	DAC	2014

## PROFESSIONAL SERVICE

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### Executive Committee Member

- General co-chair, ACM/IEEE International Symposium on Machine Learning for CAD (MLCAD) 2025
- Program co-chair, ACM/IEEE International Symposium on Machine Learning for CAD (MLCAD) 2024
- Panel chair, IEEE International Symposium of Electronics Design Automation (ISEDA) 2023–2024
- Financial chair, ACM/IEEE Workshop on Machine Learning for CAD (MLCAD) 2021–2023

### Journal Editor

- Associate Editor, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2024 – present
- Associate Editor, ACM Transaction on Design Automation of Electronic Systems (TODAES), 2024 – present
- Associate Editor, Elsevier Integration, the VLSI Journal (Integration), 2024 – present
- Guest Editor, ACM Transaction on Design Automation of Electronic Systems (TODAES) Special Issue on MLCAD, 2024
- Guest Editor, ACM Transaction on Design Automation of Electronic Systems (TODAES) Special Issue on MLCAD, 2022

### Contest Chair

- Contest Problem Chair, Interated Circuits EDA Elite Challenge 2021 – 2023

## Technical Program Committee Member

- ACM/IEEE Design Automation Conference (DAC): 2020
- IEEE/ACM International Conference on Computer-Aided Design (ICCAD): 2018 – 2021, 2023
- Design, Automation and Test in Europe Conference (DATE): 2025
- IEEE International Conference on Computer Design (ICCD): 2019
- IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC): 2021 – 2022
- ACM International Symposium on Physical Design (ISPD): 2020, 2025
- ACM/IEEE Workshop on Machine Learning for CAD (MLCAD): 2021
- ACM Great Lakes Symposium on VLSI (GLVLSI): 2024
- Workshop on Synthesis And System Integration of Mixed Information technologies (SASIMI): 2021
- IEEE Electron Devices Technology and Manufacturing Conference (EDTM): 2021
- IEEE International Conference on Artificial Intelligence Circuits and Systems (AICAS): 2022.

## Journal Reviewer

- IEEE Transaction on Computer-Aided Design of Integrated Circuits and Systems (TCAD)
- IEEE Transactions on Computers (TC)
- ACM Transaction on Design Automation of Electronic Systems (TODAES)
- SPIE Journal of Micro/Nanolithography, MEMS, and MOEMS (JM3)
- Elsevier, Integration, the VLSI Journal (Integration)

## Volunteer

- ACM SIGDA Website Administrator, 2021 – present

## 10 SELECTED PUBLICATIONS

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Inverse chronological order. \* denotes corresponding authors.

1. Yifan Chen, Zaiwen Wen, Yun Liang and **Yibo Lin\***, “[Stronger Mixed-Size Placement Backbone Considering Second-Order Information](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), San Francisco, CA, Oct 29-31, 2023.
2. Haoyi Zhang, Xiaohan Gao, Haoyang Luo, Jiahao Song, Xiyuan Tang, Junhua Liu, **Yibo Lin\***, Runsheng Wang and Ru Huang, “[SAGERoute: Synergistic Analog Routing Considering Geometric and Electrical Constraints with Manual Design Compatibility](#)”, IEEE/ACM Proceedings Design, Automation and Test in Europe (DATE), Antwerp, Belgium, Apr 17-19, 2023. (**Best Paper Award**)
3. Jing Mai, Jiarui Wang, Zhixiong Di and **Yibo Lin\***, “[Multi-Electrostatic FPGA Placement Considering SLICEL-SLICEM Heterogeneity, Clock Feasibility, and Timing Optimization](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Sep, 2023.
4. Zizheng Guo, Tsung-Wei Huang and **Yibo Lin\***, “[Accelerating Static Timing Analysis using CPU-GPU Heterogeneous Parallelism](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Jun, 2023.

5. Qipan Wang, Xiaohan Gao, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “DeePEB: A Neural Partial Differential Equation Solver for Post Exposure Baking Simulation in Lithography”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), San Diego, CA, Nov 01-03, 2022. (**Best Paper Nomination**)
6. Zizheng Guo and **Yibo Lin**\*, “Differentiable-Timing-Driven Global Placement”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jul 10-14, 2022.
7. Siting Liu, Peiyu Liao, Zhitang Chen, Wenlong Lv, **Yibo Lin**\* and Bei Yu\*, “FastGR: Global Routing on CPU-GPU with Heterogeneous Task Graph Scheduler”, IEEE/ACM Proceedings Design, Automation and Test in Europe (DATE), Antwerp, Belgium, Mar 14-23, 2022. (**Best Paper Award**)
8. Zizheng Guo, Jing Mai and **Yibo Lin**\*, “Ultrafast CPU/GPU Kernels for Density Accumulation in Placement”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Dec 05-09, 2021.
9. Zizheng Guo, Tsung-Wei Huang and **Yibo Lin**\*, “A Provably Good and Practically Efficient Algorithm for Common Path Pessimism Removal in Large Designs”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Dec 05-09, 2021.
10. **Yibo Lin**\*, Zixuan Jiang, Jiaqi Gu, Wuxi Li, Shounak Dhar, Haoxing Ren, Brucek Khailany and David Z. Pan, “DREAMPlace: Deep Learning Toolkit-Enabled GPU Acceleration for Modern VLSI Placement”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Apr, 2021. (**Best Paper Award**)

## PUBLICATIONS

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### Book Chapters

- [B3] **Yibo Lin**, Zizheng Guo and Jing Mai, “Deep Learning Framework for Placement”, Machine Learning Applications in Electronic Design Automation, Springer, 2023, edited by Haoxing Ren and Jiang Hu. (**Invited Book Chapter**)
- [B2] Haoyu Yang, **Yibo Lin** and Bei Yu, “Machine Learning for Mask Synthesis and Verification”, Machine Learning Applications in Electronic Design Automation, Springer, 2023, edited by Haoxing Ren and Jiang Hu. (**Invited Book Chapter**)

### Conference and Journal Papers (\* denotes corresponding authors)

Summary: DAC (29), ICCAD (24), IEEE TCAD (33), DATE (15), etc.

- [J213] Zhenkun Lin, **Yibo Lin**, Genggeng Liu\* and Gang Du, “URoute: Universal Routability Prediction”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2026. (accepted)
- [J212] Xu He\*, Yushan Wang, Chenjing Yang, Renjun Zhao, **Yibo Lin**, Peiyu Liao, Bei Yu, Yao Wang, Chang Liu and Yang Guo, “Efficient Timing Prediction and Optimization Using Derivable Gradient Boosting Machine Model at Placement Stage”, ACM Transactions on Design Automation of Electronic Systems (TODAES), 2026. (accepted)
- [J211] Chunyuan Zhao, Zizheng Guo, Zuodong Zhang and **Yibo Lin**\*, “GAP-LA: GPU-Accelerated Performance-Driven Layer Assignment”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2026. (accepted)

- [J210] Xufeng Yao, Jiaxi Jiang, Yuxuan Zhao, Peiyu Liao, **Yibo Lin** and Bei Yu\*, “EvoPlace: Evolution of Optimization Algorithms for Global Placement via Large Language Models”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2026. (accepted)
- [C209] Zizheng Guo, Haichuan Liu, Xizhe Shi, Shenglu Hua, Zuodong Zhang, Chunyuan Zhao, Runsheng Wang and **Yibo Lin**\*, “HeteroSTA: A CPU-GPU Heterogeneous Static Timing Analysis Engine with Holistic Industrial Design Support”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Hong Kong, Jan, 2026. (accepted) **(Invited paper)**
- [C208] Xizhe Shi, Zizheng Guo, **Yibo Lin**\*, Zuodong Zhang, Yun Liang and Runsheng Wang\*, “HeteroLatch: A CPU-GPU Heterogeneous Latch-Aware Timing Analysis Engine”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Hong Kong, Jan, 2026. (accepted)
- [C207] Kairong Guo, Haoran Lu, Rui Guo, Jiarui Wang, Chunyuan Zhao, Heng Wu, Runsheng Wang and **Yibo Lin**\*, “Standard Cell Layout Synthesis for Dual-Sided 3D-Stacked Transistors”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Hong Kong, Jan, 2026. (accepted)
- [C206] Weijian Fan, Haoyi Zhang, Weibin Lin, Runsheng Wang and **Yibo Lin**\*, “MOSTAR: Multi-Stage Hierarchical Bayesian Optimization for Substructure-Aware High-Dimensional Analog Circuit Sizing”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Hong Kong, Jan, 2026. (accepted)
- [C205] Chenhao Xue, Kezhi Li, Jiaxing Zhang, Yi Ren, Zhengyuan Shi, Chen Zhang, **Yibo Lin**, Lining Zhang, Qiang Xu and Guangyu Sun\*, “AC-Refiner: Efficient Arithmetic Circuit Optimization Using Conditional Diffusion Models”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Hong Kong, Jan, 2026. (accepted)
- [J204] Siting Liu, Ziyi Wang, Fangzhou Liu, **Yibo Lin**, Bei Yu\* and Martin Wong, “[Sign-off Timing Considerations via Concurrent Routing Topology Optimization](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2025. (accepted)
- [J203] Zhenkun Lin, Genggeng Liu\*, Xing Huang, **Yibo Lin**, Jixin Zhang, Wenhao Liu and Ting-Chi Wang, “[A Unified Deep Reinforcement Learning Approach for Constructing Rectilinear and Octilinear Steiner Minimum Tree](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2025. (accepted)
- [J202] Bingyang Liu, Haoyi Zhang, Xiaohan Gao, Zichen Kong, Xiyuan Tang, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[LayoutCopilot: An LLM-powered Multi-agent Collaborative Framework for Interactive Analog Layout Design](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2025. (accepted)
- [J201] Jingchen Zhu, Chenhao Xue, Yiqi Chen, Zhao Wang, Chen Zhang, Yu Shen, Yifan Chen, Zekang Cheng, Yu Jiang, Tianqi Wang, **Yibo Lin**, Wei Hu, Bin Cui, Runsheng Wang, Yun Liang and Guangyu Sun\*, “[Theseus: Exploring Efficient Wafer-Scale Chip Design for Large Language Models](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2025. (accepted)
- [J200] Yajuan Su, Zixi Liu, **Yibo Lin**, Xiaojing Su, Yuqin Wang, Xin Hong, Yujie Jiang, Pengyu

- Ren and Yayi Wei, “[A Post-Routing Layout Optimization Framework for Lithography Process Window Enlargement](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2025. (accepted)
- [J199] Jing Mai, Chunyuan Zhao, Zuodong Zhang, Zhixiong Di, Runsheng Wang and **Yibo Lin\***, “[LEGALM 2.0: A Versatile Augmented Lagrangian Method-Based Methodology for Mixed-Cell-Height Legalization](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), 2025. (accepted)
- [C198] Chunyuan Zhao, Jiarui Wang, Xun Jiang, Jincheng Lou and **Yibo Lin\***, “[GTA: GPU-Accelerated Track Assignment with Lightweight Lookup Table for Conflict Detection](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Munich, Germany, Oct, 2025. (**Best Paper Nomination**)
- [C197] Yufan Du, Zizheng Guo, Runsheng Wang and **Yibo Lin\***, “[Differentiable Physical Optimization](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Munich, Germany, Oct, 2025.
- [C196] Yuhao Ji, Yuntao Lu, Zuodong Zhang, Zizheng Guo, **Yibo Lin** and Bei Yu\*, “[DiffCCD: Differentiable Concurrent Clock and Data Optimization](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Munich, Germany, Oct, 2025.
- [C195] Yuan Pu, Yuhao Ji, Siying Yu, Zuodong Zhang, Zizheng Guo, Zhuolun He, **Yibo Lin**, David Z. Pan and Bei Yu\*, “[GPU Acceleration for Versatile Buffer Insertion](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Munich, Germany, Oct, 2025.
- [C194] Yi Ren, Baokang Peng, Chenhao Xue, Kairong Guo, Yukun Wang, Guoyao Cheng, **Yibo Lin**, Lining Zhang and Guangyu Sun\*, “[Orthrus: Dual-Loop Automated Framework for System-Technology Co-Optimization](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Munich, Germany, Oct, 2025.
- [C193] Haichuan Liu, Zizheng Guo, Runsheng Wang and **Yibo Lin\***, “[IncreGPUSTA: GPU-Accelerated Incremental Static Timing Analysis for Iterative Design Flows](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Munich, Germany, Oct, 2025.
- [C192] Tianxiang Zhu, Qipan Wang, **Yibo Lin\*** and Runsheng Wang\*, “[High-Resolution Full-Chip Thermal Resistance Extraction of BEOL Interconnects in 3-D ICs Considering Detailed Via Connectivity](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Munich, Germany, Oct, 2025.
- [C191] Chenchen Zhao, Zhengyuan Shi, Xiangyu Wen, Chengjie Liu, Yi Liu, Yunhao Zhou, Yuxiang Zhao, Hefei Feng, Yinan Zhu, Waa Gwok-Wan, Xin Cheng, Weiyu Chen, Yongqi Fu, Chujie Chen, Chenhao Xue, Ying Wang, **Yibo Lin**, Jun Yang, Ning Xu, Xi Wang and Qiang Xu\*, “[MMCircuitEval: A Comprehensive Multimodal Circuit-Focused Benchmark for Evaluating LLMs](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Munich, Germany, Oct, 2025.
- [C190] Yuxiang Zhao, Zhuomin Chai, Xun Jiang, Qiang Xu, Runsheng Wang and **Yibo Lin\***, “[DeepLayout: Learning Neural Representations of Circuit Placement Layout](#)”, International Conference on Machine Learning (ICML), Vancouver, Canada, Jul 13-19, 2025.
- [C189] Lijie Zeng, Jiatai Sun, Xiao Wu, Dan Niu, Tianshi Wang, **Yibo Lin**, Zuochang Ye and Zhou Jin\*, “[G-SpNN: GPU-Accelerated Passivity Enforcement for S-Parameter Modeling with](#)

Neural Networks”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 22-25, 2025.

[C188] Ziyang Yu, Peng Xu, Zixiao Wang, Binwu Zhu, Qipan Wang, **Yibo Lin**, Runsheng Wang, Bei Yu\* and Martin Wong, “[SDM-PEB: Spatial-Depthwise Mamba for Enhanced Post-Exposure Bake Simulation](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 22-25, 2025.

[C187] Zizheng Guo, Yanqing Zhang, Runsheng Wang, **Yibo Lin** and Haoxing Ren, “[GEM: GPU-Accelerated Emulator-Inspired RTL Simulation](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 22-25, 2025. (**Best Paper Nomination**)

[C186] Xun Jiang, Haoran Lu, Yuxuan Zhao, Jiarui Wang, Zizheng Guo, Heng Wu, Bei Yu, Sung Kyu Lim, Runsheng Wang, Ru Huang and **Yibo Lin**\*, “[A Systematic Approach for Multi-Objective Double-Side Clock Tree Synthesis](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 22-25, 2025.

[C185] Jiarui Wang, Yanjing Liu and **Yibo Lin**\*, “[Synergistic Die-Level Router for Multi-FPGA System with Time-Division Multiplexing Optimization](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 22-25, 2025.

[C184] Yifan Chen, Jing Mai, Zuodong Zhang and **Yibo Lin**\*, “[RUPPlace: Optimizing Routability via Unified Placement and Routing Formulation](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 22-25, 2025.

[J183] Yuxiang Zhao, Zhuomin Chai, Xun Jiang, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[PDNNNet: PDN-Aware GNN-CNN Heterogeneous Network for Dynamic IR Drop Prediction](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Jun, 2025.

[J182] Rui Guo, Haoran Lu, Jiacheng Sun, Xun Jiang, Lining Zhangm, Ming Li, **Yibo Lin**, Runsheng Wang, Heng Wu\* and Ru Huang, “[Design Optimization of Flip FET Standard Cells With Dual-Sided Pins for Ultimate Scaling](#)”, IEEE Transactions on Electron Devices (TED), Jun, 2025.

[C181] Haoyi Zhang, Shizhao Sun, **Yibo Lin**, Runsheng Wang and Jiang Bian, “[AnalogXpert: Automating Analog Topology Synthesis by Incorporating Circuit Design Expertise into Large Language Models](#)”, IEEE/ACM International Symposium of EDA (ISEDA), Hong Kong, May 9-12, 2025.

[C180] Yufan Du, Zizheng Guo, Yang Hsu, Zhili Xiong, Seunggeun Kim, David Z. Pan, Runsheng Wang and **Yibo Lin**\*, “[Addressing Continuity and Expressivity Limitations in Differentiable Physical Optimization: A Case Study in Gate Sizing](#)”, IEEE/ACM International Symposium of EDA (ISEDA), Hong Kong, May 9-12, 2025. (**Honorable Mention Paper Award**)

[C179] Kairong Guo and **Yibo Lin**\*, “[Multi-Row Standard Cell Layout Synthesis with Enhanced Scalability](#)”, IEEE/ACM International Symposium of EDA (ISEDA), Hong Kong, May 9-12, 2025.

[C178] Qipan Wang, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[ATSim3.5D: A Multiscale Thermal Simulator for 3.5D-IC Systems based on Nonlinear Multigrid Method](#)”, IEEE/ACM International Symposium of EDA (ISEDA), Hong Kong, May 9-12, 2025. (**Honorable Mention Paper Award**)

- [C177] Chenhao Xue, Yi Ren, Jinwei Zhou, Kezhi Li, Chen Zhang, **Yibo Lin**, Lining Zhang, Qiang Xu and Guangyu Sun\*, “[DOMAC: Differentiable Optimization for High-Speed Multipliers and Multiply-Accumulators](#)”, IEEE/ACM International Symposium of EDA (ISEDA), Hong Kong, May 9-12, 2025.
- [C176] Yi Ren, Chenhao Xue, Jiaxing Zhang, Chen Zhang, Qiang Xu, **Yibo Lin** and Guangyu Sun\*, “[DiffuSE: Cross-Layer Design Space Exploration of DNN Accelerator via Diffusion-Driven Optimization](#)”, IEEE/ACM International Symposium of EDA (ISEDA), Hong Kong, May 9-12, 2025.
- [C175] Haoran Lu, Xun Jiang, Yanbang Chu, Ziqiao Xu, Rui Guo, Wanyue Peng, **Yibo Lin**, Runsheng Wang, Heng Wu\* and Ru Huang, “[A Tale of Two Sides of Wafer: Physical Implementation and Block-Level PPA on Flip FET with Dual-sided Signals](#)”, IEEE/ACM Proceedings Design, Automation and Test in Europe (DATE), Lyon, France, Mar 31, 2025.
- [C174] Tianxiang Zhu, Qipan Wang, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[MORE-Stress: Model Order Reduction based Efficient Numerical Algorithm for Thermal Stress Simulation of TSV Arrays in 2.5D/3D IC](#)”, IEEE/ACM Proceedings Design, Automation and Test in Europe (DATE), Lyon, France, Mar 31, 2025.
- [C173] Xizhe Shi, Zizheng Guo, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[Handling Latch Loops in Timing Analysis with Improved Complexity and Divergent Loop Detection](#)”, IEEE/ACM Proceedings Design, Automation and Test in Europe (DATE), Lyon, France, Mar 31, 2025.
- [C172] Haikang Diao, Haoyi Zhang, Jiahao Song, Haoyang Luo, **Yibo Lin**, Runsheng Wang, Yuan Wang and Xiyuan Tang\*, “[SEGA-DCIM: Design Space Exploration-Guided Automatic Digital CIM Compiler with Multiple Precision Support](#)”, IEEE/ACM Proceedings Design, Automation and Test in Europe (DATE), Lyon, France, Mar 31, 2025.
- [C171] Jing Mai, Chunyuan Zhao, Zuodong Zhang, Zhixiong Di, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[LEGALM: Efficient Legalization for Mixed-Cell-Height Circuits with Linearized Augmented Lagrangian Method](#)”, ACM International Symposium on Physical Design (ISPD), Austin, TX, Mar 16-19, 2025.
- [J170] Xun Jiang, Jiarui Wang, Jing Mai, Zhixiong Di and **Yibo Lin**\*, “[A Robust FPGA Router With Optimization of High-Fanout Nets and Intra-CLB Connections](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Mar, 2025.
- [J169] Yuxuan Zhao, Peiyu Liao, Siting Liu, Jiaxi Jiang, **Yibo Lin** and Bei Yu\*, “[Analytical Heterogeneous Die-to-Die 3D Placement With Macros](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Feb, 2025.
- [C168] Che Chang, Boyang Zhang, Cheng-Hsiang Chiu, Dian-Lun Lin, Yi-Hua Chung, Wan-Luan Lee, Zizheng Guo, **Yibo Lin** and Tsung-Wei Huang\*, “[PathGen: An Efficient Parallel Critical Path Generation Algorithm](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Tokyo, Japan, Jan, 2025. (**Best Paper Nomination**)
- [C167] Boyang Zhang, Che Chang, Cheng-Hsiang Chiu, Dian-Lun Lin, Yang Sui, Chih-Chun Chang, Yi-Hua Chung, Wan Luan Lee, Zizheng Guo, **Yibo Lin** and Tsung-Wei Huang\*, “[iTAP: An Incremental Task Graph Partitioner for Task-parallel Static Timing Analysis](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Tokyo, Japan, Jan, 2025.

[C166] Zizheng Guo, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[Analyzing Timing in Shorter Time: A Journey through Heterogeneous Parallelism for Static Timing Analysis](#)”, IEEE International Conference on Solid-State and Integrated Circuit Technology (ICSICT), Zhuhai, China, Oct 22-25, 2024. (**Invited paper**)

[J165] Wenshuo Yue, Teng Zhang, Zhaokun Jing, Kai Wu, Yuxiang Yang, Zhen Yang, Yongqin Wu, Weihai Bu, Kai Zheng, Jin Kang, **Yibo Lin**, Yaoyu Tao, Bonan Yan\*, Ru Huang and Yuchao Yang\*, “[A scalable universal Ising machine based on interaction-centric storage and compute-in-memory](#)”, Nature Electronics, Oct, 2024.

[C164] Qipan Wang, Xueqing Li, Tianyu Jia, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[AT-Place2.5D: Analytical Thermal-Aware Chiplet Placement Framework for Large-Scale 2.5D-IC](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), New Jersey, Oct, 2024.

[C163] Chunyuan Zhao, Zizheng Guo, Rui Wang, Zaiwen Wen, Yun Liang and **Yibo Lin**\*, “[HeLEM-GR: Heterogeneous Global Routing with Linearized Exponential Multiplier Method](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), New Jersey, Oct, 2024.

[C162] Zizheng Guo, Zuodong Zhang, Wuxi Li, Tsung-Wei Huang, Xizhe Shi, Yufan Du, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[HeteroExcept: A CPU-GPU Heterogeneous Algorithm to Accelerate Exception-aware Static Timing Analysis](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), New Jersey, Oct, 2024.

[C161] Xiaohan Gao, Haoyi Zhang, Bingyang Liu, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[Joint Placement Optimization for Hierarchical Analog/Mixed-Signal Circuits](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), New Jersey, Oct, 2024.

[C160] Yufan Du, Zizheng Guo, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[Fusion of Global Placement and Gate Sizing with Differentiable Optimization](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), New Jersey, Oct, 2024. (**Best Paper Nomination**)

[C159] Tianxiang Zhu, Qipan Wang, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[FaStTherm: Fast and Stable Full-Chip Transient Thermal Predictor Considering Nonlinear Effects](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), New Jersey, Oct, 2024.

[C158] Jing Mai, Zuodong Zhang, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[MORPH: More Robust ASIC Placement for Hybrid Region Constraint Management](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), New Jersey, Oct, 2024.

[J157] Tsung-Yi Ho, Sadaf Khan, Jinwei Liu, Yi Liu, Zhengyuan Shi, Ziyi Wang, Qiang Xu\*, Evangeline F.Y. Young, Bei Yu, Ziyang Zheng, Binwu Zhu, Keren Zhu, Yiqi Che, Yun Liang, **Yibo Lin**, Guojie Luo, Guangyu Sun, Runsheng Wang, Xinming Wei, Chenhao Xue, Haoyi Zhang, Zuodong Zhang, Yuxiang Zhao, Sunan Zou, Lei Chen, Yu Huang, Min Li, Dimitrios Tsaras, Mingxuan Yuan, Hui-Ling Zhen, Zhufei Chu, Wenji Fang, Xingquan Li and Zhiyao Xie, “[Large Circuit Models: Opportunities and Challenges](#)”, Science China Information Sciences, Sep, 2024.

[C156] Jiarui Wang, Xun Jiang and **Yibo Lin**\*, “[Top-Level Routing for Multiply-Instantiated Blocks with Topology Hashing](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 23-27, 2024.

- [C155] Yufan Du, Zizheng Guo, Xun Jiang, Zhuomin Chai, Yuxiang Zhao, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[PowPrediCT: Cross-Stage Power Prediction with Circuit-Transformation-Aware Learning](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 23-27, 2024.
- [C154] Haoyi Zhang, Jiahao Song, Xiaohan Gao, Xiyuan Tang, **Yibo Lin**\*, Runsheng Wang and Ru Huang, “[EasyACIM: An End-to-End Automated Analog CIM with Synthesizable Architecture and Agile Design Space Exploration](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 23-27, 2024.
- [C153] Zichen Kong, Xiyuan Tang\*, Wei Shi, Yiheng Du, **Yibo Lin** and Yuan Wang, “[PVTSizing: A TuRBO-RL-Based Batch-Sampling Optimization Framework for PVT-Robust Analog Circuit Synthesis](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 23-27, 2024.
- [C152] Yuan Pu, Fangzhou Liu, Yu Zhang, Zhuolun He, Kai-Yuan Chao, **Yibo Lin** and Bei Yu\*, “[Lesyn: Placement-aware Logic Resynthesis for Non-Integer Multiple-Cell-Height Designs](#)”, ACM/IEEE Design Automation Conference (DAC), San Francisco, CA, Jun 23-27, 2024.
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- [J53] Ying Chen, **Yibo Lin**, Lisong Dong, Tianyang Gai, Rui Chen, Yajuan Su\*, Yayi Wei\* and David Z. Pan, “[SoulNet: Ultrafast Optical Source Optimization Utilizing Generative Neural Networks for Advanced Lithography](#)”, Journal of Micro/Nanolithography, MEMS, and MOEMS (JM3), Nov, 2019.

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### Book Chapters

- [B1] **Yibo Lin** and David Z. Pan, “[Machine Learning in Physical Verification, Mask Synthesis, and Physical Design](#)”, Machine Learning in VLSI Computer-Aided Design, Springer, 2018, edited by Abe Elfedel, Duane Boning and Xin Li. **(Invited Book Chapter)**

### Conference and Journal Papers (\* denotes corresponding authors)

Summary: DAC (7), ICCAD (7), IEEE TCAD (10), DATE (1), etc.

- [J52] Hao Chen, Mingjie Liu, Biying Xu, Keren Zhu, Xiyuan Tang, Shaolan Li, **Yibo Lin**, Nan Sun and David Z. Pan\*, “[MAGICAL: An Open-Source Fully Automated Analog IC Layout System from Netlist to GDSII](#)”, IEEE Design & Test, Apr, 2021.
- [C51] Rachel Selina Rajarathnam, **Yibo Lin**, Yier Jin and David Z. Pan\*, “[ReGDS: A Reverse Engineering Framework from GDSII to Gate-level Netlist](#)”, IEEE International Workshop on Hardware-Oriented Security and Trust (HOST), San Jose, CA, May 4, 2020.
- [C50] Mingjie Liu, Wuxi Li, Keren Zhu, Biying Xu, **Yibo Lin**, Linxiao Shen, Xiyuan Tang, Nan Sun and David Z. Pan\*, “[S3DET: Detecting System Symmetry Constraints for Analog Circuits with Graph Similarity](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Jan 13-16, 2020. **(Best Paper Nomination)**
- [C49] Mohamed Baker Alawieh, Wuxi Li, **Yibo Lin**, Love Singhal, Mahesh Iyer and David Z. Pan\*, “[High-Definition Routing Congestion Prediction for Large-Scale FPGAs](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Jan 13-16, 2020.
- [C48] Wuxi Li, **Yibo Lin** and David Z. Pan\*, “[elfPlace: Electrostatics-based Placement for Large-Scale Heterogeneous FPGAs](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Westminster, CO, Nov 4-7, 2019.
- [C47] Keren Zhu, Mingjie Liu, **Yibo Lin**, Biying Xu, Shaolan Li, Xiyuan Tang, Nan Sun and David Z. Pan\*, “[GeniusRoute: A New Analog Routing Paradigm Using Generative Neural Network Guidance](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Westminster, CO, Nov 4-7, 2019.
- [C46] Chengyue Gong, Zixuan Jiang, Dilin Wang, **Yibo Lin**, Qiang Liu and David Z. Pan\*, “[Mixed Precision Neural Architecture Search for Energy Efficient Deep Learning](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Westminster, CO, Nov 4-7, 2019.

- [C45] Biying Xu, Keren Zhu, Mingjie Liu, **Yibo Lin**, Shaolan Li, Xiyuan Tang, Nan Sun and David Z. Pan\*, “[MAGICAL: Toward Fully Automated Analog IC Layout Leveraging Human and Machine Intelligence](#)”, IEEE/ACM International Conference on Computer-Aided Design (ICCAD), Westminster, CO, Nov 4-7, 2019. ([Invited paper](#))
- [J44] **Yibo Lin**, Meng Li, Yuki Watanabe, Taiki Kimura, Tetsuaki Matsunawa, Shigeki Nojima and David Z. Pan\*, “[Data Efficient Lithography Modeling with Transfer Learning and Active Data Selection](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Oct, 2019.
- [C43] Wei Li, Yuzhe Ma, Qi Sun, **Yibo Lin**, Iris Hui-Ru Jiang, Bei Yu and David Z Pan, “[Open-MPL: An Open Source Layout Decomposer](#)”, International Conference on ASIC (ASICON), Chongqing, China, Oct, 2019. ([Invited paper](#))
- [C42] **Yibo Lin**, Shounak Dhar, Wuxi Li, Haoxing Ren, Brucek Khailany and David Z. Pan\*, “[DREAMPlace: Deep Learning Toolkit-Enabled GPU Acceleration for Modern VLSI Placement](#)”, ACM/IEEE Design Automation Conference (DAC), Las Vegas, NV, Jun 2-6, 2019. ([Best Paper Award](#))
- [C41] Wei Ye, Mohamed Baker Alawieh, **Yibo Lin** and David Z. Pan\*, “[LithoGAN: End-to-End Lithography Modeling with Generative Adversarial Networks](#)”, ACM/IEEE Design Automation Conference (DAC), Las Vegas, NV, Jun 2-6, 2019. ([Best Paper Nomination](#))
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- [C31] Wei Ye, **Yibo Lin**, Meng Li, Qiang Liu and David Z. Pan\*, “[LithoROC: Lithography Hotspot Detection with Explicit ROC Optimization](#)”, IEEE/ACM Asia and South Pacific Design Automation Conference (ASPDAC), Tokyo, Japan, Jan 21-24, 2019. (**Invited paper**)
- [C30] **Yibo Lin**, Mohamed Baker Alawieh, Wei Ye and David Z. Pan\*, “[Machine Learning for Yield Learning and Optimization](#)”, IEEE International Test Conference (ITC), Phoenix, Arizona, Oct, 2018. (**Invited paper**)
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- [J28] Meng Li, Bei Yu, **Yibo Lin**, Xiaoqing Xu, Wuxi Li and David Z. Pan, “[A practical split manufacturing framework for trojan prevention via simultaneous wire lifting and cell insertion](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Jul, 2018.
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- [C19] **Yibo Lin**, Xiaoqing Xu, Jiaojiao Ou and David Z Pan, “[Machine learning for mask/wafer hotspot detection and mask synthesis](#)”, Photomask Technology, Oct 16, 2017. (**Invited paper**)
- [J18] **Yibo Lin**, Bei Yu and David Z. Pan\*, “[High performance dummy fill insertion with coupling and uniformity constraints](#)”, IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD), Sep, 2017.
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- [J12] **Yibo Lin**, Xiaoqing Xu, Bei Yu, Ross Baldick and David Z. Pan\*, “[Triple/quadruple patterning layout decomposition via linear programming and iterative rounding](#)”, Journal of Micro/Nanolithography, MEMS, and MOEMS (JM3), Jun, 2017.
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