Xiaohan Gao, Ph.D.

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Biography

I am a Ph.D. student advised by *Prof. Yibo Lin*, at Center for Energy-efficient and Applications, Peking University. My research interests include optimization algorithms, EDA × programming language, and high performance computing.

Education

2020-Present	🔖 **Ph.D. in Computer Science**
	Center for Energy-efficient Computing and Applications, Peking University
2016-2020	🔖 **B.S. in Electronics Engineering and Computer Science**
	Yuanpei College, Peking University

Research Publications

Journal Articles

1. **X. Gao**[*], H. Zhang[*], M. Liu, *et al.*, "Interactive Analog Layout Editing with Instant Placement and Routing Legalization," *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems*, vol. 42, no. 3, pp. 698–711, 2023. 🔗 DOI: 10.1109/TCAD.2022.3190234.

2. **X. Gao**, H. Zhang, S. Ye, *et al.*, "Post-Layout Simulation Driven Analog Circuit Sizing," *SCIENCE CHINA Information Sciences*, vol. 67, 2023. 🔗 DOI: 10.1007/s11432-022-3878-5.

Conference Proceedings

1. **X. Gao**, H. Zhang, B. Liu, *et al.*, "Joint Placement Optimization for Hierarchical Analog/Mixed-Signal Circuits," in *2024 ACM/IEEE International Conference on Computer-Aided Design*, ser. ICCAD '24, San Francisco, CA, USA, 2024.

2. **X. Gao**, H. Zhang, Z. Pan, Y. Lin, R. Wang, and R. Huang, "Migrating Standard Cells for Multiple Drive Strengths by Routing Imitation," in *2024 IEEE/ACM International Symposium of EDA*, ser. ISDEA '24, Xi'an, China, 2024.

3. H. Zhang, J. Song, **X. Gao**, *et al.*, "EasyACIM: An End-to-End Automated Analog CIM with Synthesizable Architecture and Agile Design Space Exploration," in *2024 The Chips to Systems Conference*, ser. DAC '24, 2024.

4. H. Zhang, **X. Gao**, Z. Shen, *et al.*, "SAGERoute 2.0: Hierarchical Analog and Mixed Signal Routing Considering Versatile Routing Scenarios," in *2024 Design, Automation & Test in Europe Conference Exhibition*, ser. DATE '24, Valencia, Spain, 2024. 🔗 DOI: 10.23919/DATE58400.2024.10546542.

5. H. Zhang[*], **X. Gao**[*], H. Luo, *et al.*, "SAGERoute: Synergistic Analog Routing Considering Geometric and Electrical Constraints with Manual Design Compatibility," in *Design, Automation & Test in Europe Conference & Exhibition*, ser. DATE '23, Antwerp, Belgium, 2023 (Best Paper Award). 🔗 DOI: 10.23919/DATE56975.2023.10137296.

6. Y. Chen, J. Mai, **X. Gao**, M. Zhang, and Y. Lin, "MacroRank: Ranking Macro Placement Solutions Leveraging Translation Equivariancy," in *Proceedings of the 28th Asia and South Pacific Design Automation Conference*, ser. ASPDAC '23, Tokyo, Japan, 2023. 🔗 DOI: 10.1145/3566097.3567899.

7 Q. Wang, **X. Gao**, Y. Lin, R. Wang, and R. Huang, "DeePEB: A Neural Partial Differential Equation Solver for Post Exposure Baking Simulation in Lithography," in *Proceedings of the 41st IEEE/ACM International Conference on Computer-Aided Design*, ser. ICCAD '22, San Diego, CA, USA, 2022. 🔗 DOI: 10.1145/3508352.3549398.

8 Y. Lin, **X. Gao**, H. Zhang, R. Wang, and R. Huang, "Intelligent and Interactive Analog Layout Design Automation," in *2022 IEEE 16th International Conference on Solid-State & Integrated Circuit Technology*, ser. ICSICT'22, 2022. 🔗 DOI: 10.1109/ICSICT55466.2022.9963217.

9 **X. Gao**, M. Liu, D. Z. Pan, and Y. Lin, "Interactive Analog Layout Editing with Instant Placement Legalization," in *2021 58th ACM/IEEE Design Automation Conference*, ser. DAC '21, San Francisco, CA, USA, 2021. 🔗 DOI: 10.1109/DAC18074.2021.9586234.

10 **X. Gao**, C. Deng, M. Liu, Z. Zhang, D. Z. Pan, and Y. Lin, "Layout Symmetry Annotation for Analog Circuits with Graph Neural Networks," in *Proceedings of the 26th Asia and South Pacific Design Automation Conference*, ser. ASPDAC '21, Tokyo, Japan, 2021. 🔗 DOI: 10.1145/3394885.3431545.

Skills

Coding	🔖	C, C++, Python, LaTeX, CUDA, SQL
Algorithm	🔖	Convex optimization, Machine Learning
Languages	🔖	Mandarin Chinese, English, French reading

Miscellaneous Experience

Internship

June 2023 - Aug 2023	🔖	**Research Assistant** Chinese University of Hong Kong
July 2022 - June 2024	🔖	**Layout Tool Development** Primarius Technologies
July 2020 - Aug 2020	🔖	**Summer Intern** Chinese University of Hong Kong

Teaching

2023	🔖	**Teaching Assistant** Fundamental Alg. for Engineering in ICs
2021	🔖	**Teaching Assistant** VLSI CAD
2018	🔖	**Teaching Assistant** Freshman Seminar - Robotics

Honors

2022	🔖	**Scholarship** Peking University Lingjun Pioneer Scholarship
	🔖	**Award** Peking University Award for Scientific Research

Service

2024	🔖	**Reviewer** MLCAD Artifacts Evaluation
	🔖	**Reviewer** TCAD Review
2023	🔖	**Reviewer** TCAD Review