

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](https://doi.org/10.1109/TCAD.2022.3190234).

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, 2024.
- 2 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, 2024.
- 3 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, 2023 (**Best Paper Award**). DOI: [10.23919/DATEn56975.2023.10137296](https://doi.org/10.23919/DATEn56975.2023.10137296).
- 4 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](https://doi.org/10.1145/3566097.3567899).
- 5 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, California, 2022. DOI: [10.1145/3508352.3549398](https://doi.org/10.1145/3508352.3549398).
- 6 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](https://doi.org/10.1109/ICSICT55466.2022.9963217).
- 7 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, 2021. DOI: [10.1109/DAC18074.2021.9586234](https://doi.org/10.1109/DAC18074.2021.9586234).

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- 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

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| Coding | ■ C, C++, Python, L ^A T _E X, CUDA, SQL |
| Languages | ■ Mandarin Chinese, English, French reading |

Miscellaneous Experience

Internship

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|----------------------|---|
| June 2023 - Aug 2023 | ■ Research Assistant Chinese University of Hong Kong |
| July 2022 - Present | ■ Layout Tool Development Primarius Technologies |
| July 2020 - Aug 2020 | ■ Summer Intern Chinese University of Hong Kong |

Teaching

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