

Jing Mai

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Bio

I am a second-year Ph.D. student in the Department of Computer Science at Peking University associated with the Center for Energy-Efficient Computing and Applications (CECA). I am a member of the *PKU-IDEA Lab*, advised by Prof. Yibo Lin. Previously, I received the B.S. degree in Computer Science and Technology from Peking University in 2021. My research focuses are machine learning-assisted EDA; my broader interests include MLSys, concurrency and probabilistic modeling.

Education

Ph.D. in Computer Science

Center for Energy-efficient Computing and Applications (CECA), Peking University
Advisor: Prof. Yibo Lin

Sept. 2021 – Present

Beijing, China

B.S. in Computer Science and Technology

School of Electronics Engineering and Computer Science (EECS), Peking University

Sept. 2017 – June 2021

Beijing, China

Publications

(* denotes alphabetical ordering or equal contribution)

Refereed Conference Papers

[C1] Jiarui Wang, **Jing Mai**, Zhixiong Di, Yibo Lin. A Robust FPGA Router with Concurrent Intra-CLB Rerouting. 28th Asia and South Pacific Design Automation Conference (**ASP-DAC**), 2023.

[C2] Yifan Chen, **Jing Mai**, Xiaohan Gao, Muhan Zhang, Yibo Lin. MacroRank: Ranking Macro Placement Solutions Leveraging Translation Equivariancy. 28th Asia and South Pacific Design Automation Conference (**ASP-DAC**), 2023.

[C3] **Jing Mai**, Yibai Meng, Zhixiong Di, Yibo Lin. Multi-Electrostatic FPGA Placement Considering SLICEL-SLICEM Heterogeneity and Clock Feasibility. 59th ACM/IEEE Design Automation Conference (**DAC**), 2022.

[C4] **Jing Mai***, Zizheng Guo*, Yibo Lin. Ultrafast CPU/GPU Kernels for Density Accumulation in Placement. 58th ACM/IEEE Design Automation Conference (**DAC**), 2021.

Journal Papers

[J1] Yihua Cheng, Zejia Fan, **Jing Mai**, Yifan Wu, Pengcheng Xu, Yuxuan Yan, Zhenxin Fu, Yun Liang. Critique of “Planetary Normal Mode Computation: Parallel Algorithms, Performance, and Reproducibility” by SCC Team From Peking University. IEEE Transactions on Parallel and Distributed Systems (**IEEE Trans Parallel Distrib Syst**), 2021.

Book Chapters

[B1] 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**)

Research Experiences

Shenzhen Giga Design Automation

Software Development Intern

Topics: Incremental Placement for Layout-driven Synthesis

Oct 2022 – Feb 2023

Beijing, China

Nanjing Industrial Innovation Center of EDA (NiCEDA)

Software Development Intern

Topics: Dataflow-driven global placement

Aug 2021 – Sept 2021

Shanghai, China

Chinese University of Hong Kong (CUHK)

Summer Intern, co-advised by Prof. Yibo Lin and Prof. Bei Yu

Topics: Electrostatics-Based global placement for FPGAs

July 2020 – Aug 2020

Shenzhen, China

Honors and Awards

- The 3rd EDA Elite Challenge (Second Prize) Dec 2021
- Honors for Outstanding Undergraduate Graduates in Beijing (top 1%) May 2021
- Beijing Challenge Cup Competition (Second Prize) May 2021
- Xiaomi Scholarship, *Peking University* Dec 2020
- Honors for Merit Student, *Peking University* (top 5%) Dec 2019, Dec 2020
- Huawei Scholarship, *Peking University* Dec 2019
- Honors for Outstanding Academic Performance, *Peking University* Dec 2018
- The 43rd ACM-ICPC Asia Regional Competition (Gold Award) Nov 2018

Teaching and Mentoring Experience

- **Teaching Assistant** – *Optimization and Machine Learning in VLSI Design Automation*, Peking University 2022

Skills

Programming Languages and Softwares

C/C++, Python, Java, Pytorch, Tensorflow, \LaTeX , Git, CUDA, Docker, Data Analysis/Visualization(Pandas)

Web Development

HTML5, JavaScript

EDA Tools

Xilinx Vivado

Languages

Mandarin, Cantonese, English, Japanese