Research project and supervisory team

Supervisory Team	Dr. Heng Yu Dr. Yiqun Zhu
Short introduction & description of research project	Since AlphaGo, reinforcement learning (RL) has become an indispensable solver for combinatorial optimization. Recently, AI-driven Printed Circuit Board (PCB) design, specifically component placement and multi-layer routing, has emerged as a domain where Deep RL (DRL) decisively outperforms traditional heuristic algorithms. Deploying intelligent Electronic Design Automation (EDA) tools natively on local workstations is crucial for enhancing productivity while preserving proprietary IP and avoiding cloud data leakage. However, modern DRL's resource-hungry nature prohibits seamless edge deployment. A systematic edge-computing solution tailored for PCB design remains absent. This project aims to miniaturize and optimize the RL paradigm for resource-constrained edge workstations targeting AI-driven PCB design across three abstraction levels: algorithm, system, and circuit. This project will usher in systematic innovations for edge RL architectures, revolutionizing the security and interactive productivity of AI-driven PCB EDA tools.
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