Skills

Multi-Agent Systems

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Agent-Oriented Programming, Agent Orchestration, Chain-of-Stage Reasoning, Diagram-Aware Retrieval-Augmented Generation (DA-RAG), Executor Agent, Circuit Think Tank

Physics-Informed ML

Advanced

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Fourier-Biot Equation, Physics-aware Loss Functions, Physics-Informed Neural Networks (PINNs), Gradient and Laplacian Modeling

Programming Languages

Expert

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Python, JavaScript, TypeScript, Golang, Rust, LaTeX

AI/ML Frameworks

Advanced

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PyTorch, PyTorch Lightning, TensorFlow

DevOps & Infrastructure

Expert

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Docker, BigQuery, Kubernetes, GitHub Actions

Research & Analysis

Advanced

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Statistical Modeling, Empirical Research Methods, Technical Writing, Data Analysis & Efficiency

Interests

AI for Semiconductor Design

Physics-Informed Neural Networks, Circuit Design Automation, Thermal Modeling, Leakage Analysis

Multi-Agent & Multimodal AI

Multi-Agent Systems, Decision Making, Multimodal & Reinforcement Learning

Research Methodology

Integrative Tokenization, Knowledge Distillation, Process-Oriented Evaluation, Cross-disciplinary Research

Publications

MenTeR: A fully-automated Multi-agenT workflow for end-to-end RF/Analog Circuits Netlist Design

2025

https://arxiv.org/abs/2505.22990

Proposed a scalable, fully-automated multi-agent workflow for RF/Analog circuit netlist design, integrating Diagram-Aware RAG and Chain-of-Stage reasoning. Achieved state-of-the-art results on real-world analog circuit design tasks.

A Leakage Analysis Methodology Considering Intra-Cell and Inter-Cell Layout Dependent Effects

2024

https://ieeexplore.ieee.org/document/10546410

A novel methodology for digital logic IP-level leakage analysis, incorporating intra-cell and inter-cell layout-dependent effects. Improved pre- and post-silicon correlation by over 10% in industrial designs.

Fast SoC Thermal Simulation with Physics-aware U-Net

2023

https://neurips.cc/virtual/2023/76089

A physics-aware U-Net model for rapid SoC thermal simulation, embedding Fourier-Biot constraints in the loss function. Reduced max temperature error by 34% and achieved >100x speedup over CFD tools.

Languages

Chinese

Native

◆ ◆ ◆ ◆ ◆

English

Advanced

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Wei Cheng Lee

Junior Machine Learning Engineer

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Profiles

Wei Lee

Mai0313

Summary

Junior Machine Learning Engineer with experience in multi-agent AI systems, physics-informed neural networks, and automated analog circuit design.

Passionate about bridging industry and academia, advancing AI-assisted semiconductor design, and promoting open collaboration.

Experience

MediaTek

2022-08 - 08

Junior Machine Learning Engineer

Spearheaded ML research and industrialization for semiconductor design—thermal simulation, leakage analysis, and multi-agent AI systems.

- Developed and deployed physics-aware deep learning models for SoC thermal simulation, reducing maximum temperature prediction error by 34%.

- Engineered layout-dependent leakage analysis methodology, enhancing pre-silicon estimation accuracy by 10% across multiple product lines.

- Built scalable data analysis and visualization pipelines for IC design, improving decision-making speed and accuracy.

- Led automation of RF/analog circuit design using multi-agent LLM systems, driving Pass@1 success rate to over 84% on complex tasks.

- Published 3 peer-reviewed papers in top conferences (NeurIPS, IEEE VLSI TSA, IEEE ICLAD) as first/co-author.

- Established industry-academia partnerships and secured research sponsorships, supporting talent development and knowledge exchange.

- Mentored junior engineers and interns, fostering open collaboration and a culture of continuous learning.

Education

University of California, San Diego

2017-09 - 2021-09

Psychology

Bachelor

3.8/4.0

https://ucsd.edu/

Built a foundation in statistical analysis and behavioral data modeling, later transitioning to computer science through self-learning.

Explored human cognition and the social factors of learning, inspiring a shift toward computational solutions to real-world educational inequities.

Projects

Automotive Assistant for Vechicle using multi-agent system

Using multi-agent system to develop an automotive assistant for vehicle control, enabling real-time voice commands and automated task execution.

Focused on agent orchestration, executor agents, and chain-of-stage reasoning to enhance user experience and system efficiency.

MenTeR: Multi-Agent Analog Circuit Design System

Led engineering and system integration for MenTeR, an end-to-end workflow for RF/analog circuit netlist design based on LLM agents. Architected PI, Circuit, and Testbench agents, and built the Circuit Think Tank for design pattern acceleration.

Open Source & Research Collaboration

Contributed to ML and LLM open-source projects (AutoGen, LangChain, Langraph, MLflow), initiated collaborations with leading researchers, and improved workflow efficiency through DevOps pipeline optimization.

Leakage Analysis Automation

Developed scalable toolchains and visualization dashboards for automated semiconductor leakage analysis, enabling cross-team data-driven validation and real-time silicon measurement analysis.

AI Thermal Simulation Platform

Core developer for a physics-aware, data-efficient SoC thermal simulation engine. Integrated thermal constraints and benchmarked system against commercial CFD tools, achieving 34% maximum temperature error reduction and 100x speedup.