Hongyu Deng

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EDUCATION

Lehigh University Pennsylvania, United States
P.C. Rossin College of Engineering and Applied Science
Master's in Electrical and Computer Engineering Expected May 2027

Maynooth University Maynooth, Ireland
BEng in Electronic Engineering, Joint Degree Program Sep 2021 - Jun 2025

Fuzhou University Fuzhou, China
Maynooth International Engineering College
BEng in Electronic Information Engineering Sep 2021 - Jun 2025

INDEPENDENT STUDY

- **AI agents:** Studying tool-calling loops and structured tool inputs and outputs, including how a model receives and uses tool results.
- **Agent harnesses:** Exploring workflow orchestration, task state, and evidence tracking through a personal research harness and literature-retrieval examples.
- **Reinforcement learning:** Studying reinforcement learning fundamentals and reward-driven sequential decision-making.

RESEARCH PROJECTS

Design and Optimization of a Four-Bit Absolute Comparator Mar - Jul 2024

- Designed four-bit absolute comparator logic using truth tables and Karnaugh maps; verified functionality in MATLAB.
- Evaluated energy-delay trade-offs by varying gate sizes and supply voltage along the critical path.
- Reduced energy consumption by 48.13% with delay at 1.5 times the baseline, preserving logical functionality.

INTERNSHIP EXPERIENCE

Xiamen Deep Blue Power Technology Co., Ltd. Mar - Jun 2024
Electrical Control Engineer, Technical Department

- Assisted with soldering, testing, troubleshooting, and repair of charging-station circuit boards.
- Supported installation and testing of a home backup energy storage system, including multithreading and algorithm optimization.
- Tested and analyzed a battery pack module upgrade intended to address overheating in charging stations.

TECHNICAL SKILLS

Programming: Python, C++, MATLAB
Tools and methods: Digital logic design, Karnaugh maps, circuit simulation, circuit board testing