PEILIN RAO

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EDUCATION

University of Illinois at Urbana-Champaign (Expected May 2021) Sophomore

Bachelor of Science in Computer Engineering Overall GPA 3.94/4.00

PROJECTS

MentOS (Ment Operation System) Jan 2019

- Built a **linux-like system kernel** from scratch. Programmed in **C and x86 Assembly Language**.
- Provided thread-safe handler for multiply **exceptions., system calls** and **device interrupts.**
- Programmed to support **paging** and **task scheduling.**
- Implemented **file system** and **bash-like user interface.**

Kernel Panic (Interactive Virtual Reality Game) Feb 2019

- Designed and built a **3D** VR game using **Unity and C#.**
- Used **Oculus API** to build **quaternions motion tracking** and **obstacle search system** in the game.
- Applied **vision canvas** in the design process with full explanations of design choices.

GOMOKU (MCTS AI) Dec 2018

- Implemented **Monte Carlo Tree Search** on Gomoku game based on Google's paper for **AlphaGo**.
- Designed **evaluation network** with **good heuristics** and trained AI with **supervised learning**.
- Built the **full user interface** in Python and provided support for **local network connections.**
- **https://github.com/peilinrao/MCTS_Gomoku**

Aerial Disaster Relief Response System (Paper for Mathematical Contest in Modeling) Jan 2019

- Proposed a heuristic solution for **3-dimensional packing** problem with acceptable runtime.
- Use **tile-evaluation algorithm** and **dynamic planning** to provide solution for real-world problem.
- Honorable Mention Award **(top 25%)** in Mathematical Contest in Modeling

EXPERIENCES

Innovative Compound Semiconductor Laboratory UIUC, Champaign, IL, USA

Undergraduate Researcher July, 2018 - December, 2018

- Researched on the subject of **steady-state spalling of Silicon** and **GaN LED improvement**.
- Succeeded in using **TCAD software** to model semiconductors. Programmed the core systems for **meshing**.
- Gave presentations in weekly meetings. Improved **communication and teamwork skills**.
- **icorlab.ece.illinois.edu**

SKILLS

Courses: Data Structures (C++), Artificial Intelligence (Python), Virtual Reality (C#), Computer Systems Engineering (C/x86 Assembly), Numerical Methods (Python), Engineering Statistics and Probability(Python)

Technologies:

- Data structure and algorithms: proficient in **C, C++** and **Python**
- Artificial Intelligence and Machine Learning: **Python**
- Virtual Reality: **Unity** and **C#**
- Systems programming: **C** and **x86 Assembly**