Yuechuan Hou

Pittsburgh, PA
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Education

Carnegie Mellon University **Aug 2022 – Expected May 2024**
Master of Science in Mechanical Engineering GPA: 3.87/4.0 *Pittsburgh, PA*
- Research advisor: Sebastian Scherer (AirLab, Robotics Institute)

University of Pittsburgh **May 2021**
Bachelor's in Mechanical Engineering GPA: 3.97/4.0 *Pittsburgh, PA*
- Minor in Computer Science
- Honor Student, Swanson School of Engineering
- Graduated Summa Cum Laude

Sichuan University **Jun 2021**
Bachelor's in Mechanical Engineering *Chengdu, China*

Technical Skills

- **Programming Languages:** Python, C++, Java
- **Robotics and Simulation:** ROS, Isaac Sim
- **Engineering Analysis:** MATLAB, ANSYS
- **CAD:** SolidWorks, NX, CATIA

Relevant Coursework

- Data Structures
- Algorithm Implementation
- Engineering Computation
- Mobile Robots
- Visual Learning and Recognition
- Computer Organization and Assembly Language
- Artificial Intelligence and Machine Learning

Research & Projects

Dense 3D Reconstruction of Dynamic Actors in Natural Environments using Multiple Flying Cameras (Project Funded by National Science Foundation Grant No. 2024173) **Aug 2022 – Expected May 2024**
Research Assistant *Pittsburgh, PA*
- **Formation Planning:** Designed adaptive aerial formations for filming groups of people based on Python and ROS
- **Field Testing:** Developed and executed planning and control strategies for filming moving individuals using an aerial robot equipped with GPS-based tracking
- **3D Reconstruction:** Human pose detection using OpenPose with photo-realistic simulation via Isaac Sim and progressed towards a comprehensive 3D pose reconstruction pipeline

Advanced Cross-Platform Game Porting of 'Metal Slug' with C++ and OpenGL **Jan 2023 – May 2023**
Team Leader *Pittsburgh, PA*
- **Game Adaptation:** Transitioned "Metal Slug" to modern platforms using C++ and OpenGL ensuring seamless gameplay functionality
- **Game Design:** Architected intricate gameplay mechanics and graphics, delivering an immersive user experience through algorithms
- **AI Integration:** Engineered intelligent enemy behaviors and integrated dynamic difficulty scaling based on player performance to maintain a balanced gameplay experience

Investigation of Thermal Mechanical Properties of 3D Printed Lattice Cooling Structure for Hot Section Components Using High Temperature Alloys (Project Funded by National Natural Science Foundation of China) **Jul 2021 – Jul 2022**
Research Assistant *Chengdu, Sichuan*
- **Deep Learning Modeling:** Designed neural network algorithms for accurate heat transfer property predictions of varied lattice structures
- **System Optimization:** Integrated genetic algorithms to optimize the heat transfer efficiency
- **Algorithm Verification:** Employed nonlinear regression and sensitivity analysis, ensuring the precision and robustness of algorithms for real-world applicability

Professional Experience

Siemens Smart Manufacturing Innovation Center Chengdu **Jul 2019 – Aug 2019**
Intern *Chengdu, Sichuan*
- Utilized NX to address practical problems in mechanical engineering