XIATAO SUN

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EDUCATION

University of Pennsylvania *Aug. 2021 - May 2023*
M.S. in Robotics
GPA: 3.90/4.0

Rensselaer Polytechnic Institute *Aug. 2017 - May 2021*
B.S. in Mechanical Engineering
GPA 3.93/4.0
Honor: Summa Cum Laude, Dean's Honor List, Member of Tau Beta Pi

RESEARCH & INTERNSHIP EXPERIENCE

mLAB(Real-Time and Embedded Systems Lab) Nov. 2021 - Present
Research Assistant *Philadelphia, PA*

- Built autonomous driving simulation in VR and MR using Unreal Engine4 and Python based on CARLA and OpenXR framework
- Developed real-time data transmission between server and client for steering wheel position calibration using Python Flask as the REST API and Unreal VaRest plugin for accessing the API
- Achieved high-fidelity graphics with optimized collision detection using a detailed mesh rendering for VR perspective and mesh with reduced polygons as a collider
- Currently developing a Unity autonomous driving simulator from scratch for Mixed Reality application

Qingdao Tian Yi Data Tech Co., Ltd. May 2021 - Present
Co-Founder, CTO *Qingdao, China*

- Led the technological development of a healthcare platform
- Designed and planned the overall software architecture and the roadmap
- Developed the entire demo of the platform using Python, MySQL, HTML, Bootstrap, JavaScript, jQuery, and other relevant back-end and front-end technologies from scratch
- Deployed the application on AWS using CentOS for operating system, uWSGI for multithreading and web server gateway interface, and GoDaddy for DNS hosting
- Managed the development team and assessed employees performance

CeMSIM (Center for Modeling, Simulation, & Imaging in Medicine) Jun. 2020 - Dec. 2020
Undergraduate Student Researcher *Troy, NY*

- Developed the entire simulation environment, fixed errors in models, and tuned the graphics via High-Definition Rendering Pipeline
- Based on XR Plug-in Framework, developed most player interaction mechanics and a variety of locomotion system integrated together, including continuous movement, snap turn, and teleportation
- Developed AI agents in Unity Machine Learning platform based on PPO (proximal policy optimization) for a push block task

School of Engineering at Rensselaer Polytechnic Institute Jan. 2020 - May 2020
AR/VR Developer *Troy, NY*

- Built a VR environment of MILL (Manufacturing Innovation Learning Laboratory) and synchronized it with the actual MILL lab, using Unreal Engine 4, Blueprint and Maya
- Developed a continuous locomotion with dynamic collision detection, automatic height adjustment, and auto-alignment between player model and outside collider

Department of MANE at Rensselaer Polytechnic Institute May 2019 - May 2020
Course Development Assistant *Troy, NY*

- Built a virtual environment as graphical user interface for students in Propulsion Systems course, using Unity3D, Blender and C#
- Employed MATLAB to get curve fit of thermal dynamics system to fit into C# code in Unity program
- Developed the entire simulation program from scratch, responsible for designing and constructing environment, post-processing, and visual effects, as well as programming for interaction mechanics based on SteamVR Plugin in Unity
- Helped on finding the curve fit for the underlying thermodynamic model that governed the simulation by using MATLAB

Department of Chemical Engineering at Rensselaer Polytechnic Institute May 2019 - May 2020
VR Developer *Troy, NY*

- Developed a virtual reality lab for students' practice in process control and thermodynamics, using Unity3D and C# for game logic and Blender for 3D modeling
- Transformed the original flat screen simulation into virtual reality, developed VR interaction mechanics and teleportation locomotion system in this project based on SteamVR Plugin in Unity
- Worked on graphics enhancement and 3D modeling for a variety of objects, such as heat exchanger and water tank

Liandessen Electrical Institution and Technology Co., Ltd. Sep. 2019 – Dec. 2019
Mechanical Engineer Intern *Qingdao, China*

- Selected and arranged modes in an appropriate way, analyzed structure of parts to identify whether they had undercut or not, and examined the types of sidestep
- Determined the cooling method and pipe arrangement, and clarified the quantity and position of inserts
- Utilized CAD to draw and verify part diagram

Rensselaer Artificial Intelligence and Reasoning Lab Sep. 2018 – Dec. 2018
Undergraduate Student Researcher *Troy, NY*

- Researched on the logical differences between eastern and western culture, assisted in building prototyping NLP translating programs, such as word parser, with the help of logical translation by using Python

Goertek Electronics Jun. 2018 – Jul. 2018
Embedded System Developer Intern *Qingdao, China*

- Tested and debugged the prototype of OPPO O-Free, a truly wireless earbud, using SDK from Snapdragon and GAIA

KNOWLEDGE & TECHINCAL SKILLS

Knowledge	Control, Path Planning, Filter, XR Development, Machine Learning, Data Analytics, Web Development, Embedded System Development
Programming Languages	C, C++, C#, Python, MATLAB, SQL, HTML, JavaScript
Web Development Tools	Flask, SQLAlchemy, Vue.js, jQuery
CAD Software	NX Unigraphics, SpaceClaim
3D Modeling Software	Blender, Maya, ZBrush, Marvelous Designer, Substance Painter
Game Engines	Unity, Unreal Engine 4
Data Analytics Tools	Jupyter Notebook, Pandas, Matplotlib, Seaborn, PySpark
Machine Learning Frameworks	PyTorch, MXNet, Unity ML-Agents, Tensorflow, Spark ML
Language	Mandarin, English
Other Technical Skills	Docker, LaTeX, LabVIEW, Lathe, Vertical Drill, Welding, FL Studio, Piano

COURSEWORKS

MEAM520	Introduction to Robotics
MEAM620	Advanced Robotics
ESE650	Learning in Robotics
CIS545	Big Data Analytics
EAS545	Engineering Entrepreneurship I