

# Zhenyuan Zhang | Resume

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## Education

### University of Michigan

Ann Arbor

*Bachelor of Science in Computer Science, GPA 3.9 out of 4.0*

*Sep. 2019 – May 2021*

**Core courses:** Computer Architecture, Data Structures and Algorithms, Operating Systems, Compiler Construction

### University of Michigan – Shanghai Jiao Tong University Joint Institute

Shanghai

*Bachelor of Science in Electronic and Computer Engineering, GPA 3.6 out of 4.0* *Sep. 2017 – Aug. 2021*

**Core courses:** Engineering Probabilistic Methods, Differential Equations, Linear Algebra, Discrete Mathematics

## Experience And Activities

### Procedural Animation Project

*Leader*

*Jan. 2021 – present*

A research project seeks to introduce methods of motion synthesis in robotics into animation systems

- Wrote an interface to the trajectory optimization library `torx` in C++
- Generated a trajectory database for motion matching
- Applied to real-time applications like games

### Undergraduate Game Design Project

*Designer and Programmer*

*October 2020 – Dec. 2020*

A course project for University of Michigan's game developing course

- Designed core mechanism focused on planning and executing
- Designed the code architecture
- Implemented enemy AI with complex but reasonable behavior using Goal Oriented Action Planning
- Tried to do narrative generation using planning algorithms

### Research in ARM Lab on Trap Aware Model Predictive Control

*Research Assistant*

*May 2020 – present*

An online model-based controller for escaping traps in novel environments

- Implemented baseline based on Guided Policy Search
- Implemented baseline based on Soft Actor-Critic

### WolverineSoft Studio Game Project

*Unity Programmer*

*June. 2020 – August. 2020*

A 3D first-person stealth horror game where the player must traverse through a castle avoiding horrible monsters

- Worked over the course of one semester with a team of 30 developers
- Created enemy animations using trajectory optimization
- Implemented an easy-to-use interacting system
- Implemented dialogue system for narrative purpose

### Undergraduate Research Program

*Student*

*Nov. 2018 – Apr. 2019*

Evaluation of Algorithms for Deep Reinforcement Learning

- Set up an unified environment that integrates different algorithms and scenarios
- Implemented reinforcement learning algorithms including PPO and DDPG in TensorFlow
- Implemented a benchmarking procedure for algorithm evaluating

## Computer Skills

### Programming Languages:

- **C++:** Have good coding style; Have experience in multiple projects
- **Rust:** Understand ownership, lifetime and type traits; Have experience in projects
- **Python:** Can implement machine learning algorithms and train agents

**Game Engines:** Unity (C#), Amethyst (Rust)