Joy Zhang

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EDUCATION

Cornell University, College of Engineering

Masters of Engineering, Computer Science, GPA 3.9 **May 2021**

Bachelor of Science, Computer Science Major, Game Design Minor, GPA 3.5 **Dec 2020**

PROFESSIONAL EXPERIENCE

Hometopia

Senior Game Developer **Dec 2024 – Feb 2025**

Junior Game Developer **Jul 2024 – Dec 2024**

- Contributed to development of a multiplayer house-building PC sandbox game in **Unity** by writing clean, well-organized, and easily maintainable **C#** code
- Took ownership of UI development, collaborated with designers to give game a cohesive look and feel
- Developed an audio system to centralize control of music, ambience, and sound effects
- Improved multiplayer features, including friend list, parties, chat, and save file transfer and sharing
- Investigated and fixed critical gameplay, multiplayer, and UI bugs
- Lead and mentored a small team of junior developers, delegated tasks, and performed code reviews
- Took responsibility for developing the demo for a separate virtual pet mobile game

Northrop Grumman

ODIN, *Software Engineer* **Jan 2022 – Jun 2024**

- Developed Omniverse apps in **Python** with Pixar's USD libraries to build a virtual warfighting environment by controlling drones and sensors, streamlining data generation, and visualizing data
- Built physically accurate flight simulators for Volansi and Spirit drones with Omniverse's integrated **PhysX** physics engine for data generation, testing, and proof of concept
- Integrated Omniverse simulation with external AI code and live drones running in real-time
- Developed a suite of tools in **Python** to create, control, and randomize scenes, assets, and perceptual variables for data generation, using ROS 2 (Robot Operating System) to interact with Omniverse
- Supported team members by sharing knowledge of computer graphics math techniques

COAGEN, *Software Engineer* **Aug 2021 – Dec 2021**

- Built demo in **Java** for modified batch scheduling algorithm accounting for interruptions predicted by a long short-term memory (LSTM) neural network for long-term resilience against adhoc task disruptions

PROJECTS

M.Eng Project **Jan 2021 – May 2021**

- Implemented networking functionality in Cornell University Games Library (CUGL) game engine
- Synchronized CUGL simulated physics with fixed timestep and state snapshotting in **C++**

Game Design Initiative at Cornell **Jan 2019 – May 2021**

- Developed gameplay mechanics, physics, and programmatic animations with **C++** and **libGDX** in **Java** as a gameplay programmer to make games in teams of 6 and 7
- Accepted to BostonFIG Fest in 2019 with computer game *Starstruck*, a cooperative puzzle platformer set in space, and in 2020 with mobile game *Spectacle!*, a one-tap pinball-inspired puzzle game
- Guided students through entire process of designing and creating digital games as a Teaching Assistant

Global Summit **Jun 2020 – Aug 2020**

- Created **Pygame** simulation for an unmanned wildfire identification and suppression system

Cornell Big Red Hacks **Sep 2019**

- Awarded Best Design Hack for *One Call Away*, a short story platformer that highlights the importance of mental health created in **Unity** in 36 hours in a team a 4

SKILLS

Adobe (Character Animator, Illustrator), Blender, Box2D, C, C#, C++, ClickUp, Construct 3, CSS, Docker, Eclipse, Git, HTML, IntelliJ IDEA, Java, Jira (Agile), LaTeX, libGDX, Linux, Matlab, Maven, Nvidia Omniverse, Ocaml, Perl, PHP, PhysX, Plastic SCM, Python, Robot Framework, Unity, Visual Studio Code, Visual Studios