RUJIA (SISSEL) SUN

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EDUCATION

Cornell Tech (Cornell University), New York, NY — Expected May 2024
Master of Engineering in Computer Science
Relevant Coursework: Virtual and Augmented Reality, Machine Learning Engineering, Interactive Device Design

Cornell University, Ithaca, NY — May 2023
Bachelor of Science with Honors in Computer Science | GPA: 4.1
Minor: Game Design, Information Science (Interactive Technologies concentration)
Honors/Awards: Tau Beta Pi Scholar for 2022-23; Dean's List for six semesters
Relevant Coursework: Object Oriented Programming, Functional Programming, Data Structures, Analysis of Algorithms, Computer Graphics, Computer Vision, Machine Learning, Game Design, Rapid Prototyping, Human Computer Interaction, Web Applications
Experience: Teaching Assistant for INFO 4320/5321 (Introduction to Rapid Prototyping and Physical Computing) for two semesters

TECHNICAL SKILLS

Coding Languages:	Python, C++, C#, Java, HTML, JavaScript, CSS, Arduino, C, OCaml
Software:	Unity, Adobe (Photoshop, After Effects), Live2D, Autodesk Fusion 360, Figma, LaTeX
Hardware and Prototyping:	3D Printing, Laser Cutting
Languages:	English (fluent), Chinese (native)

EXPERIENCE

SciFi Lab, Cornell University, Undergraduate Research Assistant, (Python, 3D printing, LaTeX), Ithaca, NY — June 2022 - May 2023

- Designed and 3D-printed form factor hardware that is attached to an off-the-shelf glass-frame and a Quest 2 VR headset
- Enhanced the data collection script in Python by implementing video embedment, text animations, and enabling user studies in VR via Quest Link
- Explored how to track activities inside the oral cavity via acoustic sensing using a non-contact nose interface
- Evaluated performance via a user study with 11 participants and achieved 93.7% accuracy in using a ResNet18 CNN model to classify 16 gestures of silent speech, breathing patterns and tongue movements
- Summarized research findings in a 4-page paper as the first author and delivered a conference talk at UbiComp/ISWC 2023

LEAD Lab, ShanghaiTech University, Undergraduate Research Assistant, (C#, Unity), Shanghai, China — May 2021 - Aug 2021

- Built a Unity project in VR using HTC Vive Pro that recorded eye gaze data and converted it into a real-time heatmap
- Customized a shader using Unity's universal render pipeline to display heatmaps on 3D objects with non-overlapping UV maps
- Engineered a CSV-based gaze data export and heatmap reconstruction system, enhancing user activity analysis and project versatility

PROJECTS

SketchVR, (C#, Unity, XR Interaction Toolkit) — Fall 2023
A design tool enabling users to craft 3D sketches within a virtual reality environment

- Customized an interactor that selects and manipulates multiple interactables based on a sphere collider with adjustable size
- Developed a two-handed locomotion interaction that allows users to scale, rotate and translate the VR environment
- Enabled users to creatively modify primitive 3D object shapes via mesh manipulation
- Designed a 3D HSV-based color selection system where saturation is dynamically determined by the z-position of the VR controller

AnimeMoji, (Python, Stable Diffusion, MediaPipe, Gradio, Adobe After Effects, Miro) — Spring 2023
An application that uses Stable Diffusion and face mapping to generate personalized animated emojis in anime style

- Combined Stable Diffusion with customized face mapping logic for generating animated emojis from text and human face videos
- Implemented a user-friendly Gradio front end that is paired with Stable Diffusion API, simplifying the creation of customized emojis
- Created a research video which provided a detailed overview of project pipeline, discussed implications and future work

Stregheria, (C++, Adobe Photoshop, Live2D, Tiled, JavaScript) — Spring 2023
A hack-and-slash game on Android and iOS that utilizes combinations of gestures as spells to defeat waves of enemies

- Adopted Model-View-Controller pattern in a team of 10 members to maintain a well-structured codebase that facilitates collaboration
- Applied A* search algorithm for enemy pathfinding and included multiple enemy behaviors in AI controller using finite state machines
- Utilized graphical level design by using Tiled (a map editor) and parsed JavaScript files that are exported as levels in game
- Designed captivating animations for 2 enemy types using Live2D, including 1 flying and 1 quadrupled

Procedural World with VR Integration, (C#, Unity, ProBuilder) — Fall 2022
A third-person game with a procedural world, custom shaders and a slider that controls the liveliness of the environment

- Generated game terrain procedurally with Perlin noise and customized shaders for water and clouds using Unity Shader Graph
- Developed a real-time slider for dynamic control of terrain color, water level, plant scale and cloud thickness to improve interactivity