Spencer Ng

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Education

The University of Chicago — Chicago, IL
BS/MS in Computer Science, BA in Theater & Performance Studies — Expected June 2023
GPA: 3.95 | Courses: Topics in HRI, Computer Graphics, Designing Virtual Spaces, Performance Captured

Publications

Ting-Han Lin*, **Spencer Ng***, and Sarah Sebo (2022). Benefits of an Interactive Robot Character in Immersive Puzzle Games. In *Proceedings of the 31st IEEE International Conference on Robot & Human Interactive Communication* (RO-MAN 2022). 37-44. IEEE. | *equal contribution

Research Experience

Human-Robot Interaction Lab, University of Chicago — Chicago, IL
Research Assistant, advised by Prof. Sarah Sebo — Oct. 2020 - Present

- Designing studies surrounding personalized robot characters in entertainment and caretaking settings
- Studied how robot helpers in a puzzle game are more fun and comfortable to play with than humans
- Creating robot demos in Robotics Operating System using speech recognition and path planning

Argonne National Laboratory — Lemont, IL
Research Intern, advised by Dr. Nicola Ferrier — June 2020 - Sep. 2020

- Identified human activity and natural habitat features in images by training deep learning models with YOLO and PyTorch
- Determined the most bandwidth-optimized samples for transfer learning by designing a parallelized Python pipeline to run inference on simulated edge sensors

Neural Engineering Speech and Hearing Lab, NJ Institute of Technology — Newark, NJ
Research Intern, advised by Prof. Antje Ihlefeld — June 2019 - Sep. 2019

- Diagnosed hearing disabilities by developing a sound matching Unity game with C#, incorporating custom real-time algorithms to simulate pitch shifting and sound localization

Teaching Experience

University of Chicago

Transmedia Puzzle Design & Performance, Teaching Assistant	Fall 2022
Introduction to Computer Science I, Teaching Assistant	Fall 2022
Computer Science for Data Scientists, Teaching Assistant	Spring 2022
Mobile Computing, Teaching Assistant	Winter 2022
Honors Introduction to Computer Science I, Teaching Assistant & Course Grader	Fall 2020/2021
Engineering Interactive Electronics onto Printed Circuit Boards, Teaching Assistant	Spring 2021

Awards

Enrico Fermi Scholar: top 5% GPA in Physical Sciences Collegiate Division — 2022
Harper Award for Exceptional Performance in a Course: awarded for Mobile Computing — 2021
University & Dean's Scholarship — 2019-2023

Work Experience

Roblox — San Mateo, CA
Software Engineering Intern — June 2022 - Sep. 2022

- Detected copyrighted audio clips and made SFX recommendations to users by researching, developing, and deploying audio deep learning models and vector similarity search on AWS Lambda
- Improved audio marketplace search by building a gRPC .NET service to classify uploaded sounds

Verizon - Sports Innovation Team — Basking Ridge, NJ
Product Management Intern — June 2021 - Aug. 2021

- Defined product vision, UX flow, and feature requirements for mobile experiences integrating AR and tracking technologies in partnership with NBA and NFL teams
- Improved user experience and decreased AR load times in the NFL 5G Multi-View app by presenting recommendations to product vendors and owners
- Led discussions with vendors to test and visualize ShotTracker data to improve athlete performance

University of Chicago IT Services Chicago, IL
Network Architecture Developer Oct. 2019 - June 2021

- Automated campus network maintenance by creating Python interfaces to determine real-time device status and backup/sync device configurations between Netbox, Box, and local storage
- Implemented and documented Docker/Gitlab CI workflow for Python development and deployment

University of Chicago Laboratory Schools Chicago, IL
Metcalf Intern Apr. 2020 - June 2020

- Created dashboards with Tableau to visualize Google Meet, Zoom, Schoology, and Seesaw data
- Analyzed online learning trends and measured effectiveness of video conference platforms

Skills

Languages:	Python, C#, JavaScript, HTML/CSS, SQL, Java, C, C++, Unix Bash, Processing
Libraries:	AWS, Google Cloud, Unity, Android, ROS, PyTorch, Pandas, OpenCV, .NET, REST APIs
Tools:	Git, Docker, Maya, Adobe Creative Suite, TouchDesigner, 3D printing, digital electronics

Activities

University Theater Chicago, IL
Chair & Stage/Production Manager Oct. 2019 - Present

- Produce 35+ annual shows by managing a $50k+ annual budget and curating new and diverse work
- Foster artistic opportunities, resolve conflicts, and create inclusive rehearsal spaces for 100+ members
- Maintain University Theater online presence and Jekyll-based website, with 5k+ monthly views

Uncommon Hacks Chicago, IL
Co-Director Jan. 2021 - Present

- Hosted an in-person hackathon and workshop series for 120+ students by leading a team of 15+ organizers, managing food and prize logistics, and raising $8k+ in sponsorship funds
- Created and led a workshop on real-world data visualization using JavaScript and Chart.js
- Managed judges/mentors and created social events for an online hackathon with 300+ attendees

UChicago Science Olympiad Chicago, IL
Event Supervisor Oct. 2019 - Present

- Created and administered hands-on tests for high school science competitions with 150+ annual participants, focusing on electronic circuit design/analysis and technical communication skills

Magic Chicago, IL & New Jersey
Performer & Instructor Sep. 2017 - Present

- Entertain crowds of up to 200 at community events, comedy clubs, and birthday parties
- Wrote a curriculum and taught a 20-week course on sleight-of-hand magic to children ages 10+

Projects

Embodied Controllers: Installation to play emulated SNES games using physical gestures (e.g. jumping) in front of a Kinect camera, built using OpenCV, OBS, and PyGame

Digital Deck: Projection mapping magic performance piece to morph playing card appearances in real-time using TouchDesigner, Processing, and Vosk offline voice recognition

Party Favors: Privacy-focused interactive art installation to physically print answers to security questions extracted from conversation with a virtual agent, speech recognition, and Google Cloud NLP

Transmedia Puzzle Design: Board game and magic-themed narrative puzzles involving custom 3D-printed parts, web apps, graphic design, and Twilio phone agents

AutoTOS: Summarized terms in privacy policies with 90% accuracy by training a natural language processing model and writing a Google Cloud AI API backend (Best Use of Google Cloud, PennApps XXI)

RecycleMe: Android app to classify and detect recyclable items and find nearby recycling centers, built with the Google Vision API, Google Maps API, and Earth911 search

Laundry Manager & Optimizer: Smart hamper built with Raspberry Pi and sensors to detect wash symbols with computer vision and optimize laundry loads

Production Experience

University of Chicago

The Intruder, Projections Designer, University Theater	Fall 2022
King Lear, Production Manager, University Theater	Spring 2022
Amazons and their Men, Assistant Scenic Designer, Theater & Performance Studies	Winter 2022
Love's Labour's Lost, Stage Manager, University Theater	Fall 2021
My H8 Letter to the Gr8 American Theatre, Stage Manager, Theater & Performance Studies	Winter 2021
Waiting for Godot, Assistant Stage Manager, University Theater	Winter 2020
The Winter's Tale, Assistant Stage Manager, University Theater	Fall 2019