

SPENCER NG

Redwood City, CA · spencer@spencerng.me · github.com/spencerng
Creative Technologist · Live Experience Designer

EDUCATION

The University of Chicago

B.S. & M.S. in Computer Science, *summa cum laude*
B.A. in Theater & Performance Studies with honors

Chicago, IL
Graduated June 2023

WORK EXPERIENCE

Roblox

Software Engineering Intern

San Mateo, CA
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

Product Management Intern

Basking Ridge, NJ
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

Network Architecture Developer

Chicago, IL
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

Metcalf Intern

Chicago, IL
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
Tools: Git, AWS, Google Cloud, Unity, Android, ROS, PyTorch, OpenCV, .NET, Docker, Twilio
Other: OBS, QLab, 3D printing/modeling, Adobe Creative Suite, puzzle design, digital electronics

RESEARCH EXPERIENCE

Human-Robot Interaction Lab, University of Chicago

Research Assistant, advised by Prof. Sarah Sebo

Chicago, IL
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

Research Intern, advised by Dr. Nicola Ferrier

Lemont, IL
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

Research Intern, advised by Prof. Antje Ihlefeld

Newark, NJ
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

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

LEADERSHIP EXPERIENCE

- University Theater** Chicago, IL
Committee Chair & Stage/Production Manager Oct. 2019 - June 2023
- Produced 20+ annual shows by managing a \$50,000+ budget and curating new and diverse work
 - Foster artistic opportunities, resolve conflicts, and create inclusive rehearsal spaces for 100+ members
 - Maintained University Theater online presence and Jekyll-based website, with 5,000+ monthly views
- Uncommon Hacks** Chicago, IL
Co-Director Jan. 2021 - June 2022
- 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 - June 2021
- 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+

SELECTED PROJECTS

- Learning Institute for the Very Enlightened:** Immersive narrative escape room with custom-made monitoring/cueing system, Arduino automation, smart light control, projected media, and physical puzzles
- Conversational AI Characters:** Interactive art installation featuring iconic robot characters in endless conversation, built with GPT-3 prompt engineering, 3D-printed parts, and custom text-to-speech models
- Cloud Carbon Estimation:** Browser extension integrated in AWS and GCP consoles to estimate carbon emissions caused by launching virtual machines via ClimaTiq API data
- Embodied Controllers:** Installation to play emulated retro console games using physical gestures (e.g. jumping), built using Azure Kinect, OpenCV, OBS, and PyGame
- Digital Deck:** Projection mapping performance piece to morph playing card appearances in real-time using TouchDesigner, Processing, and speech recognition
- AutoTOS:** Website to summarize privacy policy terms, built by training a natural language processing model (90% accuracy) and writing a Google Cloud backend (Best Use of Google Cloud, PennApps XXI)

AWARDS & HONORS

- Theater & Performance Studies Award:** BA project with the highest level of artistic excellence 2023
- Phi Beta Kappa:** academic honor society 2022
- Enrico Fermi Scholar:** top 5% GPA in the Physical Sciences Collegiate Division 2022
- Harper Award for Exceptional Performance in a Course:** awarded for Mobile Computing 2021

TEACHING EXPERIENCE

- University of Chicago**
- Mobile Computing, Teaching Assistant Winter 2022/2023, Spring 2023
- 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
- Honors Introduction to Computer Science I, Teaching Assistant & Course Grader Fall 2020/2021
- Engineering Interactive Electronics onto Printed Circuit Boards, Teaching Assistant Spring 2021

THEATER PRODUCTION EXPERIENCE

University of Chicago

<i>Learning Institute for the Very Enlightened</i> , Writer/Director/Designer	Spring 2023
<i>At Your Own Risk</i> , Asst. Projections Designer, Theater & Performance Studies	Spring 2023
<i>Macbeth in Space</i> , Projections Designer, University Theater	Winter 2023
<i>The Intruder</i> , Projections Designer, University Theater	Fall 2022
<i>Theater[24]</i> , Actor, University Theater	Fall 2022
<i>King Lear</i> , Production Manager, University Theater	Spring 2022
<i>Amazons and their Men</i> , Asst. Scenic Designer, Theater & Performance Studies	Winter 2022
<i>Love's Labour's Lost</i> , Stage Manager, University Theater	Fall 2021
<i>My H8 Letter to the Gr8 American Theatre</i> , Stage Manager, Theater & Performance Studies	Winter 2021
<i>Waiting for Godot</i> , Asst. Stage Manager, University Theater	Winter 2020
<i>The Winter's Tale</i> , Asst. Stage Manager, University Theater	Fall 2019