

# SPENCER NG

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

## EDUCATION

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### The University of Chicago

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

Chicago, IL  
Graduated June 2023  
GPA: 3.96/4.00

## WORK EXPERIENCE

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### Roblox

*Software Engineer*

- Improving voice chat by building data pipelines to measure and record audio quality metrics

San Mateo, CA

Aug. 2023 - Present

### Roblox

*Software Engineering Intern*

- 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

San Mateo, CA

June 2022 - Sep. 2022

### Verizon

*Product Management Intern*

- 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

Basking Ridge, NJ

June 2021 - Aug. 2021

### University of Chicago IT Services

*Network Architecture Developer*

- 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

Chicago, IL

Oct. 2019 - June 2021

### University of Chicago Laboratory Schools

*Metcalf Intern*

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

Chicago, IL

Apr. 2020 - June 2020

## SKILLS

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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

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### Human-Robot Interaction Lab, University of Chicago

*Research Assistant, advised by Prof. Sarah Sebo*

- Designing studies surrounding personalized robot characters in entertainment settings
- Studied how robot helpers in a puzzle game are more fun and comfortable to play with than humans

Chicago, IL

Oct. 2020 - Present

### Argonne National Laboratory

*Research Intern, advised by Dr. Nicola Ferrier*

- 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

Lemont, IL

June 2020 - Sep. 2020

### Neural Engineering Speech and Hearing Lab, NJ Institute of Technology

*Research Intern, advised by Prof. Antje Ihlefeld*

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

Newark, NJ

June 2019 - Sep. 2019

## PUBLICATIONS

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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)*. | \*equal contribution

## LEADERSHIP EXPERIENCE

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### University Theater

*Committee Chair & Stage/Production Manager*

Chicago, IL  
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

*Co-Director*

Chicago, IL  
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

*Event Supervisor*

Chicago, IL  
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

*Performer & Instructor*

Chicago, IL & New Jersey  
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

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**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

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**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

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### University of Chicago

*Teaching Assistant*

Mobile Computing

Winter 2022, Winter 2023, Spring 2023

Transmedia Puzzle Design & Performance

Fall 2022

Introduction to Computer Science I

Fall 2022

Computer Science for Data Scientists

Spring 2022

Honors Introduction to Computer Science I

Fall 2021

Engineering Interactive Electronics onto Printed Circuit Boards

Spring 2021

*Course Grader*

Computer Science with Applications III	Spring 2021
Honors Introduction to Computer Science II	Winter 2021
Honors Introduction to Computer Science I	Fall 2020

THEATER PRODUCTION EXPERIENCE

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**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