

# Yichen (Eason) Lu

6105 Spirit St., Pittsburgh, PA | yichen15@andrew.cmu.edu | +1 (217) 979-6718 | [yichen14.github.io](https://yichen14.github.io)

## Education

### CARNEGIE MELLON UNIVERSITY

*Master of Science in Artificial Intelligence*

Aug. 2023 – May. 2025

Cumulative GPA: 3.84/4.00

Coursework: Large Language Models, LLM System, System Tool Chains for AI; Speech Recognition and Understanding

### UNIVERSITY OF ILLINOIS AT URBANA CHAMPAIGN

*Bachelor of Science Statistics & Computer Science*

Aug. 2019 – May. 2023

Cumulative GPA: 3.93/4.00 (Highest Honor; Dean's List)

Coursework: Computer Vision; Machine Perception; Autonomous Vehicle; Applied Machine Learning; Abstract Linear Algebra; Data Structures; Operation System; Statistical Modeling; Database Design; Web Development

Research Interests: Multimodal Large Language Models, Speech Language Models, Audio-Visual Fusion, Speech Self-Supervised Learning

## Publications

[1] *SynesLM: Audio-Visual Language Model for Multimodal Speech Recognition and Translation*

Yichen Lu\*, Jiaqi Song\*, Xuankai Chang, Hengwei Bian, Soumi Maiti, Shinji Watanabe  
Under Review [[Paper](#)]

[2] *Exploring Speech Recognition, Translation, And Understanding with Discrete Input: A Comparative Study*

Xuankai Chang, Brian Yan, Kwanghee Choi, Jeeweon Jung, Yichen Lu, Soumi Maiti, Roshan Sharma, Jiatong Shi, Jinchuan Tian, Shinji Watanabe, Yuya Fujita, Takashi Maekaku, Pengcheng Guo, Yao-Fei Cheng, Pavel Denisov, Kohei Saijo, Hsiu-Hsuan Wang  
ICASSP'2024 [[Paper](#)]

[3] *Noisy Positive-Unlabeled Learning with Self-Training for Knowledge Graph Completion*

Ruijie Wang, B Li, Yichen Lu, D Sun, J Li, Yuchen Yan, Shengzhong Liu, Hanghang Tong and Tarek F. Abdelzaher  
ACL'2023 [[Paper](#)]

## Research Experiences

WAV LAB (CMU) | *Research Project* | Advisor: Prof. Shinji Watanabe

July. 2023 – Present

- Contribute to open source E2E Speech Processing toolkit ESPnet [[GitHub](#)], which is the most popular open-source speech processing repository.
- Conduct research on **multimodal unified decoder-only language models** on speech related tasks. [[1](#)]
- Conduct research on utilizing discrete token on Automatic Speech Recognition on different dataset. [[2](#)]
- Published paper on top computer science conferences. [[1](#), [2](#)]

CYPHY GROUP (UIUC) | *Research Assistant* | Advisor: Prof. Tarek Abdelzaher

Jun. 2022 – May. 2023

- Built graph neural network for defending global attack on dynamic link prediction task based on graph structure learning; reimplemented Models (**EvolveGCN**, **GAE/VGAE**, **Euler**, **VGRNN**) and several attack methods (Meta attack). [[3](#)] [[GitHub](#)]
- Designed a standard “**config + trainer**” **deep learning infrastructure** for GNN and conducted several experiments.
- Implemented a **Gradient Boost Regressor** kernel and **Random Forest Regressor** kernel for INCAS project, which is funded and managed by DARPA.

IM LAB (UIUC) | *Research Intern* | Advisor: Prof. Kris Hauser, Prof. Yuxiong Wang

Jan. 2022 – Aug. 2022

- Designed and developed a continual few-shot learning system's user interface, **interactive segmentation** component (RITM), context-aware copy-and-paste technique (CAPS) with a prototype-based **incremental few-shot semantic segmentation** model (PIFS), improving the robots' continuous learning abilities. [[Doc](#)]
- Designed and implemented a continual learning system benchmark in realistic setting in consideration of system inference latency and user annotation quality.

## Leadership/Project Experiences

ViDove ([Website](#)) | *Founder & Machine Learning Engineer*

Feb. 2023 – Present

- Developed an **Open-sourced End-to-end Video Translation Pipeline** for video subtitle generation in specific field.
- Managed open-source repository of ViDove [[Github](#)] **76 Stars**.
- Designed a specific testing metric for **video subtitle translation task** under realistic setting based on **COMET score**, **SacreBLEU**, and our own time stamp evaluation.
- Designed and implemented auto-proofread algorithm based on weighted similarity distance (our own algorithm) which improved pipeline performance by 50%
- Directed a technical team with 10 members and a marketing team with about 3 members.
- IMPACT: Pigeon AI has already officially cooperated with StarCraft 2 World Team League (the greatest SC2 E-Sports tournament in the world) for helping them translate the tournament content.**

**SUGAR MASSES CREATIVE** | *Founder, Developer, & Director*

**Feb. 2014 - Dec. 2018**

- Launched the **largest official Minecraft tournament** in China (China Minecraft Construction Summit), **attracting over 1,000 contestants** and over **1 million online viewers** annually by leading a team of 30 members.
- Achieved long-term cooperation on Minecraft competitions with major internet companies in China including NetEase, Qihoo360, Tencent, and Youku; secured project investment from NetEase and JoyMe.com.
- Presented at the largest digital entertainment expo in China (ChinaJoy2016, with more than 325,000 entries by business partners, media, consumers, and exhibitors in the four-day event).

## **Work Experience**

---

**TrovaAI, Inc.** | *Machine Learning Engineer Intern*

**May. 2023 – Aug. 2023**

- Designed and developed Python-based smart, semantic search and AI assistant research platform using **LangChain** and **Pinecone** Vector Database.
- Designed an information retrieval pipeline for the platform which ingests all types of documents, websites, tables, and live data, and create searchable vector and keyword indices.
- Designed and developed the **LLM-based evaluation method** for whole QA system.
- Designed and developed deep link function which will trigger the relevant application based on user's queries using **SentenceBERT**.

**VMware, Inc.** | *Software Engineering Intern*

**Jul. 2021 - Jan. 2022**

- Analyzed **Automatic Post-Editing Model's(BERT-based)** output by using Pandas, NumPy, and matplotlib; debugged the machine learning-based automatic translation system.
- Designed and implemented an automatic data processing pipeline for monthly translation system performance reports generation, **increasing analysis efficiency by 50%**.
- Optimized data querying process speed by applying **Elastic Stack** to large dataset (2 terabyte) management.

**NetEase, Inc. (NASDAQ: NTES)** | *Software Engineering Intern*

**Oct. 2020 - Feb. 2021**

- Developed the search, sorting, comic download, and comic sharing for "Marvel Unlimited" android version (Chinese official Marvel comic reading app; daily active user: 5000) independently using Java and the **android Jetpack tool library**. [[Website](#)]
- Finished comic download function of the app in a team of 3 following the development logic and architecture of android software of large commercial project; self-learned Android development techniques such as **DataBinding**, **DataViewModel** and Fragment.

## **Skills**

---

- **Languages:** Python(Advanced), Java, C/C++, Rust, R, JavaScript, OCaml, Dart, SQL, CSS, TypeScript
- **Tools/Framework:** PyTorch, Git, LaTeX, PySpark, React.js, Node.js, Flask, PostgreSQL, MongoDB, Linux, Slurm