

# KINAN MARTIN

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## EDUCATION

### Massachusetts Institute of Technology

Master of Engineering in Computer Science and Cognition

Graduation: May 2024

GPA: 4.9 / 5

### Massachusetts Institute of Technology

Bachelor of Science in Computer Science and Cognition; Minor in Linguistics

Graduation: May 2023

GPA: 4.9 / 5

Relevant coursework: Natural Language Processing · Computer Vision (G) · Large Language Models · Artificial Intelligence · Deep Learning (G) · Spoken Language Processing (G) · Computational Cognitive Science (G) · Machine Learning · Laboratory in Psycholinguistics · Data Structures and Algorithms · Programming · Projects in the Science of Intelligence · Discrete Math · Linear Algebra · Probability and Random Variables

## WORK EXPERIENCE

### Artificial Intelligence Research Intern - Foxconn

June 2023 - August 2023

- Spearheaded project on AI driving assistant with multimodal vision-language models and LLMs
- Designed and implemented novel model architecture and dataset generation pipeline
- Jointly devised US and Taiwanese patents for the above (pending)
- Collaborated with Academia Sinica students to create related video demo for Hon Hai Tech Day 2023

### Spoken Language Processing Student Researcher - MIT CPL

September 2022 - now

- Designed and implemented novel probing paradigm for self-supervised spoken language models
- Used Facebook AI's fairseq to quantify to what extent models incl. HuBERT exhibit human-like processing behavior
- Wrote [first-author paper](#) accepted to int'l spoken language processing conference [INTERSPEECH 2023](#)

### Teaching Assistant - MIT 6.101 Fundamentals of Programming

September 2022 - now

- Taught class of 300+ students by helping solve/debug assignments and fostered good coding practices in weekly labs
- Led weekly staff meetings and taught 30+ fellow lab assistant staff best practices in helping students
- Jointly created and tested problem sets and maintained class server front-end and back-end

### Natural Language Processing Research Intern - University of Chile

June 2022 - August 2022

- Co-authored [paper](#) on training word embeddings for Spanish clinical use published in int'l science journal *Frontiers*.
- Implemented NLP models for int'l computational linguistics competition ([SMM4H 2022: SocialDISNER](#)): scored 2<sup>nd</sup> place on eval metric. Co-authored corresponding [paper](#) published by *Association for Computational Linguistics*.

### Computational Psycholinguistics Student Researcher - MIT TedLab

June 2020 - March 2021

- Used natural language processing techniques to quantify obstacles to comprehension posed by legal language.
- Developed scripts using Python NLP libraries (incl. NLTK, Stanza) to structurally parse texts and quantify difficulty.
- Culmination in [paper](#) published by international cognitive science journal *Cognition*.

## SELECTED PROJECTS

### Problem Solving with Large Language Models via Context Augmentation

April 2023

Devised and implemented a set of LLM context augmentation methods to improve performance at problem solving.

### Speech to speech translation model

May 2022

Built novel speech to speech translation pipeline, wrote corresponding paper describing methodology.

### Querying neural representations of language with EEG data

November 2021

Used novel EEG dataset from child epilepsy patients to investigate neural responses to linguistic features.

### Grapheme to phoneme RNN model

May 2021

Built Pytorch-based LSTM models to predict the pronunciation of novel words given their spellings for arbitrary languages.

### Analysis of positional distribution of Main Clause Phenomena

April 2020

Used Amazon's Mechanical Turk and implemented code in R to field experimental data and replicate psycholinguistics research paper on the distribution of certain grammatical structures.

## SKILLS AND ACHIEVEMENTS

### Foreign Languages

Japanese, French, Russian, Levantine Arabic, Spanish, Chinese; learning Vietnamese, Korean, and more

### Coding Languages

Python, \*nix/Bash, MATLAB, R, JavaScript, HTML/CSS,  $\LaTeX$

### Software & Tools

git, pytorch, sklearn, fastAI, numpy, pandas, Colab, cluster comp, Azure, Praat, Amazon MTurk

- Passed highest level (N1) of the international Japanese Language Proficiency Test (JLPT) in the 96<sup>th</sup> percentile (2017).
- Ron Brown Scholarship Scholar (2019-present).

- First Place in Russian Poetry Recitation, Second Place in Speech Contest at New England Olympiada of Spoken Russian at Harvard University (2020).