

Tony Juntao Hu

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Education

- **University of Toronto**
September 2020–April 2025
Computer Science and Linguistics · GPA: **4.0**
Relevant Coursework:
Software Design, Computer Organization, Algorithms, Operating Systems
Teaching Assistantship:
Calculus and Linear Algebra for Commerce

Skills

- **Programming Languages**
C, JavaScript/TypeScript, Python, Rust, C++, Java, Bash, R, TeX, Typst
- **Technologies**
React, Next.js, Spring, SQL, Linux, UEFI, Git, GitHub/Gerrit, Atlassian Jira, Confluence, Unit Testing
- **Natural Languages**
English, Mandarin, French, Russian

Experience

- **Web Developer** January 2024–Present
Self-employed
 - Developed and deployed a dynamic website for an online linguistics study using **TypeScript**, **React**, and **Next.js**
 - Configured a **PostgreSQL** database and blob storage through Vercel
 - Developing and maintaining an open-source, framework-agnostic **React library** facilitating the setup of online experiments, written in **TypeScript**
- **Firmware Engineer Intern** May 2023–April 2024
Advanced Micro Devices, Inc.
 - Owned and developed **UEFI EDK2** silicon initialization code of numerous IPs (USB, ACPI, I2C/I3C, eSPI) for next-generation SoC program in **C**
 - Implemented and tested 3 crucial components for the AMD USB4 v2 Pre-OS Connection Manager in **C**
 - Developed a testing framework with stream-like parsing utilities in **Python**, with 50+ **unit tests** implemented
 - Led the POC of AMD openSIL silicon init library for Client-side southbridge team, resulting in 80% completion of code development

Select Projects

- **Amigos Friend Matcher**
 - Organized and led 5 teammates to implement a web app based on **Spring Boot** in **Java**
 - Wired the front- and backend with **Spring** and **Thymeleaf**
 - Coded 5+ controller and model classes following the **MVC Architecture**
 - Developed a **database** to store users and programmed 5 data access interfaces
- **Autocorrect**
 - Implemented the **BK-Tree algorithm** for approximate string matching
 - Implemented the **Trie** data structure as part of the Levenshtein automaton, improving performance by 60%
 - Designed a GUI with **Tkinter** in **Python** to display 3 autocorrection results for each word
 - Implemented a web crawler with the **Scrapy** framework in **Python**, collecting 600 megabytes of text data

Research

- **Student Principal Investigator** September 2023–Present
Aptitude and working memory effects on French pronunciation in beginner language classrooms
 - Designed the methodology of a novel research project with 7 components
 - Completed a pilot study of 4 participants using a self-developed online experiment platform
 - Reported preliminary findings in a 20-page academic paper
- **Research Assistant** September 2022–Present
Toronto Language and Cognition Lab
Principal Investigator: Myrto Grigoroglou
 - Conducted literature review and discussion sessions on cross-linguistic semantic distinctions and audience design
 - Coded multimodal linguistic data using ELAN
 - Synthesized research findings in a 25-minute oral presentation at the TULCON16 conference
 - Authored a 6-page research paper and poster presentation

- **Research Assistant and Programmer**

May 2022–Aug 2022

Phonological patterns of loanwords in English

Supervisor: Peter Jurgec

- Created 70+ frame sentences and organized experiment stimuli in CSV format to detect phonological patterns
- Designed experiment website using **JavaScript** and **EJS**
- Extracted and analyzed experiment data with **R**

- **Research Assistant**

September 2021–April 2022

Investigating African languages spoken in Toronto

Supervisor: Suzi Oliveira de Lima

- Prepared and conducted 8+ elicitation sessions with speakers of Bantu languages to collect language data
- Tested hypotheses on adjectives classes and comparative constructions by analyzing data