

Ruixuan Tu

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🌐 Website: turx.asia | 📄 Résumé: [EN](#) [日](#) [中](#) | Updated on 6 September 2024

EDUCATION

University of Wisconsin–Madison September 2021 - Present
Bachelor of Science in Computer Sciences (Honors), Mathematics (Honors), & Data Science, Statistics, Japanese Madison, Wisconsin, USA

GPA: 3.865/4.0 Credits: 229 (2 times of graduation requirement)

Honors: Dean's List (Fall 2021, Spring 2022, Fall 2022), Undergraduate Scholarship for Summer Study (2023, 2024)
Consistently taking the most challenging PhD-level (graduate only) courses numbered 700-899 that generally not allow undergraduate students to take.

Selected Computer Sciences Courses: Intro-Artificial Intelligence, Intro-Operating Systems, Database Management Systems, Intro-Algorithms (Honors), Intro-Programming Languages & Compilers, Intro-Optimization, Linear Optimization, Intro-Theory of Computing, Nonlinear Optimization I (Grad), Mathematical Machine Learning (Grad), Game Theory and Learning

Mathematics Courses: Linear Algebra (Honors), Intro-Theory of Probability, Intro-Combinatorics, Analysis I (Honors)/II (Honors), Modern Algebra I (Honors)/II (Honors), Intro-Stochastic Processes (Honors), Elementary Topology (Honors), Real Analysis I (Grad)/II (Grad, 50% complete), Theory of Probability I (Grad)

Selected Other Major Courses: Classical Japanese, The Tale of Genji, Intro-Japanese Linguistics, Japanese Sociolinguistics, Intro-Probability and Mathematical Statistics II

ACADEMIC EXPERIENCE

Research Interests: machine learning including natural language processing, weakly supervised learning, in-context learning; open to other related fields

Research Assistant June 2022 - Present
Dr. Forrest Sheng Bao, Vectara Inc / Iowa State University (Remote) Ames, Iowa, USA

NLP Research in text summary quality metrics, retrieval-augmented generation; labeling studio Mercury

* Paper: Forrest Sheng Bao*, Ruixuan Tu*, Ge Luo, Yinfei Yang, Hebi Li, Minghui Qiu, Cen Chen (2022). DocAsRef: A Pilot Empirical Study on Repurposing Reference-based Summary Quality Metrics as Reference-free Metrics. arXiv ACL Anthology (equal contribution co-first author, accepted by Findings of the Association for Computational Linguistics: EMNLP 2023, presented in poster and short talk sessions of NewSumm Workshop of EMNLP 2023)

Independent Researcher November 2023 - Present
On Japanese NLP Madison, Wisconsin, USA

Japanese linguistics: estimated trends by predictions of origin of words using language model
Classical Japanese: Waka generation and Kuzushiji recognition

Research Assistant July 2024 - Present
Prof. Ramya Korlakai Vinayak, University of Wisconsin–Madison Madison, Wisconsin, USA

Thesis Research: Generalizability of In-Context Learning

Research Assistant August 2024 - Present
Prof. Junjie Hu & Dr. Sean Yun-Shiuan Chuang, University of Wisconsin–Madison Madison, Wisconsin, USA

NLP Research in Opinion Dynamics by Language Models

Research Assistant February 2023 - April 2024
Prof. Xiaojin Jerry Zhu, University of Wisconsin–Madison Madison, Wisconsin, USA

Machine teaching research on supervised learning (linear and k-NN) and reinforcement learning. implementations on supervised learning

WORK EXPERIENCE

Undergraduate Peer Mentor / Tutor

September 2022 - Present

Department of Computer Sciences & University Housing, University of Wisconsin–Madison Madison, Wisconsin, USA

- * COMP SCI 540 (Intro-Artificial Intelligence): Helping students to learn machine learning, math, game, and search by answering questions during office hours (- May 2024)
Received Golden Bricks Award (2023) for service to CS Department *Post*
- * Calculus: providing individual and group tutoring to residents taking Mathematics courses

Software Development Engineer Intern

May 2022 - September 2022

Textea Inc

(Remote) Coralville, Iowa, USA

- * Lead Developer of Funix: NodeJS generator from Python functions to serverless web instances *PyCon Poster*
- * Lead Developer of Web Backend: APIs for user auth, permission, admin, RPC and HTTP remote call
- * Developer of NLP Backend: classical natural language processing task implementation in Python, API migration

EXTRACURRICULAR HONORS & AWARDS

ACM-ICPC (International Collegiate Programming Contest): Silver Medal (7th place out of 96 teams) (2021 ICPC NCNA Regional, Team THREE_PUPILS); Rated (26th place out of 118 teams) (2022 ICPC NCNA Regional, Team GEKOta)

ACSL (American Computer Science League) Senior Division

2020 All-Star: Global Top Score; Personal Gold; Programming Proficiency; Team Silver

2019 - 2020: Team Bronze; Individual Distinction

Google Code-in: Finalist (Top 6) at KDE Community (2018) and Haiku OS (2019)

China National Olympiad in Informatics in Provinces: 2nd Prize, Senior Division (2019, 2020); 3rd Prize, Senior Division (2018); 2nd Prize, Junior Division (2017)

China Adolescents Science and Technology Innovation Contest: 1st Prize in Province, Finalist of National Contest (2020, Project *Trash Classification System based on CNN of Machine Learning*)

PROJECTS

KDE Connect (Apple Continuity-like Experience) | Swift, Objective-C, C++ (Qt)

KDE, November 2018 - Present

- * Data: 284K normal App Store downloads, 10K active testers, and 1M impressions as of April 2024 *App Store*
- * Lead Developer of macOS version (new UI, device list, secure connection, plugin ports; GSoc'22 proposal)
- * Developer and Reviewer of iOS version (About view, background execution with location, trusted networks)
- * Maintainer of App Store Connect for release and troubleshooting
- * Contribution to Android and Linux versions (new conversation in Android SMS)

Highlighted Course Projects | C, C++, Python, Java

February 2022 - Present

- * OS: xv6 trace count for syscall; priority-based scheduler, virtual memory extension; threading with spin lock
- * OS: distributed network file system with both server and client on idempotent UDP-based protocol
- * OS: wish – Unix shell to execute program, supporting `cd`, `path`, `exit`, redirection, error, and `if` statements
- * Database: relational database buffer manager, heapfile manager, operations (`select`, `delete`, `insert`)
- * PL: Compiler for a subset of C Programming Language
- * Optimization: Flight Fare Optimization with MIP; Implementation/Analysis of various descent methods

SKILLS

Computer Science

- Programming Languages: Python, Java/Kotlin, C/C++, JavaScript/TypeScript (NestJS, React, MUI), Objective-C/Swift, C# (.NET, Mono, Unity), Bash, Assembly (LC-3, AT&T), PHP, Visual Basic, Lisp, ASP
- Web/Markup Languages: \LaTeX , Markdown (Pandoc), HTML, CSS
- Machine Learning/Data Science: HuggingFace, PyTorch/TensorFlow/NumPy/Pandas, R, Julia, SQL, MATLAB
- Developer Tools: Git, Visual Studio Code, IntelliJ IDEA, Docker, Vim, Visual Studio, Unity Editor, Qt Creator
- Operating Systems: macOS, Linux (Ubuntu, Debian, OpenWRT, WSL), Windows

Natural Languages

- First Language: Chinese (Mandarin, Gan)
- Fluent: English (TOEFL 103/120), Japanese (JLPT N1 154/180, 95.4 Percentile)