Yuhan (Hannah) Xiang

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GitHub: https://github.com/Hannah-Xiang

RESEARCH PROFILE

Master of Applied Computing student in the AI Stream at the University of Windsor with strong foundations in machine learning, statistical learning, Python programming, data analysis, and software development. Experienced in designing and evaluating machine learning pipelines, including semi-supervised learning, feature selection, imbalanced-data handling, and ensemble classification. Hands-on experience integrating AI services into software systems and translating technical requirements into working applications. Interested in reinforcement learning, multi-agent systems, uncertainty assessment, and intelligent decision-making in complex environments, with a strong motivation to contribute to research on multi-UAV systems and autonomous coordination.

EDUCATION

Master of Applied Computing — AI Stream
University of Windsor, Windsor, Ontario | May 2025 – Aug 2026

Bachelor's Degree in Computer Science / Engineering
China Jiliang University, Hangzhou, China | Sep 2020 – Jul 2024
Top 10% of class | Academic average: 86

RESEARCH & MACHINE LEARNING EXPERIENCE

Semi-Supervised Feature Selection for Imbalanced Tabular Data **Sep 2025 – Dec 2025**
University of Windsor
Python, Pandas, NumPy, Scikit-learn, imbalanced-learn, XGBoost, semi-supervised learning

- Investigated multiple pseudo-labeling approaches, including Label Propagation with RBF/KNN, Label Spreading with KNN, and Self-Training with Logistic Regression.
- Compared feature-selection strategies using L1 regularization and mutual information, together with SMOTE and random under-sampling for class imbalance.
- Evaluated 108 experimental pipeline configurations combining semi-supervised learning, feature selection, sampling strategies, and classification models.
- Compared Logistic Regression, Random Forest, and XGBoost, systematically analyzing model performance across experimental settings.
- Best-performing configuration, XGBoost + Label Propagation with KNN, retained approximately 97.9% of the ROC-AUC of fully supervised XGBoost while using one-third of the labeled data.

Credit Card Users Default Prediction Using Machine Learning **Aug 2025**
Python, Pandas, NumPy, Scikit-learn **University of Windsor**

- Collaboratively performed data loading, preprocessing, exploratory data analysis, model development, tuning, and evaluation for next-month credit-card default prediction.
- Compared Logistic Regression, Decision Tree, KNN, and Gaussian Naive Bayes models.
- Analyzed model behavior through preprocessing, feature preparation, hyperparameter tuning, and evaluation.

AI & SOFTWARE PROJECTS

MindLog — AI Diary & Reflection Companion **Jan 2026 – May 2026**

Flutter, Dart, Supabase, OpenAI API **University of Windsor**

- Developed an AI-powered cross-platform journaling application integrating a mobile application, cloud backend, and LLM-based AI workflow.
- Implemented documented individual contributions including diary creation with text, voice, image, tag, and mood inputs, timeline browsing, diary-detail views, and authentication/profile management.
- Integrated Flutter with Supabase and OpenAI services, using structured AI outputs to support diary generation and reflection workflows.
- Worked with application state, data synchronization, user authentication, and AI-assisted content generation in a collaborative software-engineering environment.
- Gained practical experience translating AI capabilities into an end-to-end application while considering data modeling, privacy, cost efficiency, and system reliability.

Mobile Data Plan Assistant **May 2025 – Aug 2025**

Java, Selenium, JSoup, Maven **University of Windsor**

- Developed Java components for collecting, processing, searching, and filtering telecom mobile-plan data from multiple providers.
- Implemented Trie-based spell checking, AVL Tree word completion, and edit-distance correction, demonstrating practical algorithm and data-structure application.
- Contributed Freedom-specific web crawling, mobile-plan filtering, validation, and interactive GUI functionality using Selenium, JSoup, Java Collections, and regular expressions.

EXPERIENCE

IT Support / Workflow Automation

Zareh's Jewellery, Windsor, Ontario **May 2026 - Sept 2026**

- Observed and analyzed a paper-heavy business workflow involving repeated customer, job, scheduling, and due-date information entry.
- Mapped the existing workflow and designed Figma prototypes to communicate a proposed digital process to a non-technical business owner.
- Independently developed a Django-based internal workflow system covering customers, jobs, job types, statuses, due dates, calendar views, and dashboard reporting.
- Implemented search, filtering, pagination, form validation, customer management, authentication, and

password-reset workflows.

- Worked on deployment and Windows-based startup automation to support practical internal access to the system.
- Demonstrated independent problem solving from requirements discovery, workflow modeling, prototype, implementation, deployment.

R&D / Test Intern

Hangzhou Eastcom Software Technology Co., Ltd., Hangzhou, China Aug 2023 – Dec 2023

- Designed functional and integration test cases for data-integration and metadata-auditing workflows.
- Conducted functional and performance testing with emphasis on schema consistency, change detection, and audit accuracy.
- Identified and documented data-quality and business-logic issues through structured test reports.
- Collaborated with developers to reproduce defects, validate fixes, and improve data-ingestion reliability.

Information Technology Intern

Suzhou GaiaWorks Information Technology Co., Ltd., Suzhou, China Jul 2022 – Aug 2022

- Implemented an internal password-expiration reminder workflow for Active Directory users through Enterprise WeChat.
- Troubleshot software, network, and hardware issues for internal users.
- Assisted with system configuration, onboarding, IT asset management, and security-related operations.
- Created and maintained technical documentation and user guides.

TECHNICAL SKILLS

Programming: Python, Java, C, JavaScript, SQL, C#/.NET
Machine Learning: Scikit-learn, XGBoost, semi-supervised learning, classification, feature selection, model evaluation, imbalanced learning
AI / LLM: OpenAI API, structured outputs, LLM application integration, basic embeddings
Backend / Web: Django, Django REST Framework, Spring Boot, SSM, ASP.NET, REST APIs, HTML/CSS
Data: Pandas, NumPy, MySQL, PostgreSQL, SQLite
Algorithms: Trie, AVL Tree, edit distance, data structures & algorithms
Systems / Tools: Linux, Bash, Git/GitHub, Selenium, JSoup, Maven, Jira, Confluence, Figma
Research & Engineering: Experimental design, data analysis, model comparison, software testing, debugging, technical documentation

RESEARCH INTERESTS

Reinforcement Learning, Multi-Agent Systems, Multi-Agent Reinforcement Learning, Autonomous Systems, UAV Coordination, Situation Awareness, Uncertainty Assessment, Machine Learning, Intelligent Decision-Making

AWARDS & PUBLICATION

- Chi, C., Fu, Z., & Xiang, Y. (2023). *Supporting linguistically and culturally diverse English language learners by integrating first language.* Educational Role of Language Journal, 22(8), 58–67.
- **Second Prize**, 14th Blue Bridge Cup National Software & Information Technology Competition — Python, 2023
- **Third Prize**, Programming Design Competition — Individual, 2022
- **Third Prize**, National College Students Mathematics Competition, 2021
- **Excellent Student Cadre**, 2021
- **Student Union, Technology Innovation Department — Department Lead**, 2021–2022