

# Keyu Wang

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## Education

**McGill University, CGPA: 3.96/4.0**

**September 2020 – Present**

*B.Sc. in Computer Science - Internship Program, minor in Geographic Information Science*

*Montreal, QC*

**Courses:** Applied Machine Learning, Natural Language Processing, Computer Vision, Database Systems, Algorithm Design, Discrete Mathematics, Statistics, Advanced Geographic Information Science

## Awards & Scholarships

**Undergraduate Student Research Award (USRA) 2024**

\$8,700 | Issued by Natural Sciences and Engineering Research Council of Canada (NSERC)

**Undergraduate Student Research Award (USRA) 2023**

\$9,000 | Issued by NSERC

**Research Assistantship Stipend**

\$2,550 | Issued by Social Sciences and Humanities Research Council (SSHRC)

**Perseverance Award for Women in Technology 2022**

\$3,000 | Issued by Quebec Government

**McGill University Dean's Honour List 2022**

**McGill University Dean's Honour List 2021**

## Research

**Mitigating Downstream Model Risks via Model Provenance**

**May 2024 – Present**

*Mila, AI Research Institute*

*Montreal, QC*

- Under the supervision of Prof. **Doina Precup** with collaborators from Google & Meta, illustrated model provenance risk in healthcare, identified key properties for early warning systems & proposed an open-source, community-led repository for tracking model provenance to enhance transparency and establish a new standard for responsible model management.
- As the 1st author, **paper** is accepted to NeurIPS 2024 workshop: Socially Responsible Language Modelling Research, as a poster presentation.

**Mapping Western Han: GIS-enabled Historiography for Travel Routes**

**February 2023 – January 2024**

*Department of Geography, McGill*

*Montreal, QC*

- Built **project website** from scratch for Historical Geography research project under the supervision of Prof. **Raja Sengupta** and Prof. **Griet Vankeerberghen**, using JavaScript, HTML, Leaflet.
- Automated map digitization for boundary changes throughout 200 years in imperial China, using Python & ArcGIS.

**Upcoming: Causal and Fair Machine Learning**

**January 2025 - May 2025**

*Provable Responsible AI and Data Analytics Lab (PRADA Lab), KAUST*

*Jeddah, Saudi Arabia*

**Upcoming: Graph Neural Networks (GNN) and Optimal Transport**

**May 2025 - August 2025**

*Machine Learning and Data Science Unit, Okinawa Institute of Science and Technology (OIST)*

*Okinawa, Japan*

## Work Experience

**Data Scientist Intern**

**May 2024 – August 2024**

*Bell Canada*

*Montreal, QC*

- Conducted data analysis on **Google Cloud Platform**, including query optimization and extensive RegEx work for data extraction. Implemented models from **Hugging Face** & followed Agile methodologies to ensure effective collaboration.

**AI & Data Engineering Intern**

**May 2023 – December 2023**

*Bell Canada*

*Montreal, QC*

- Built ML algorithms including clustering for Business Intelligence problems using **Teradata SQL**, Python ML frameworks such as **Scikit-learn**.
- Data analysis & engineering support for building training dataset of a Presence-only model about Competitors' Network Speed Analysis, following ETL pipelines.
- Utilized **Agile** methodologies (Scrum) to ensure effective collaboration, using **JIRA Board & Confluence**.

**Head Instructor Coding & Game Design**

**June 2022 – August 2022**

*Appleby College Camps*

*Oakville, ON*

- Planned course materials for coding and video game design camps, and taught basic Python and GameMaker to over 140 children from 7 to 14 years old.
- Organized weekly showcases & maintained close communication with campers' families for study updates.

## Projects

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### McGill School of Computer Science Scheduling Website | *Web Development* December 2024

- As one of the 2 backend developers who made a user-friendly platform that simplifies appointment scheduling for McGill staffs and students.

### You Are At Where You Tweet: GPT Prompting to Geo-locate Twitter Users | *LLM, AI safety* April 2024

- Employed a dataset featuring user-defined locations and tweet texts, the study involved grouping tweets by user, cleaning, and refining input prompts to optimize accuracy.
- Final top-3 accuracy of 47% for worldwide city location inference & 82% for Australian city predictions.

### Logistic & Multi-class Regression on IMDB Movie Reviews and News | *Machine Learning, NLP* February 2024

- Preprocessing of datasets, feature selection through simple linear regression coefficients and mutual information scores, and developing logistic and multi-class regression models from scratch.

### Frame Prediction for Aerial Objects | *Computer Vision, OpenCV, MATLAB* December 2022

- Developed object tracking & frame prediction methods for aerial objects in MATLAB using classic (non-AI) computer vision algorithms.

### California Gold Rush Historical Storymap | *JavaScript, HTML, MapBox, GeoJSON* October 2022

- Visualized the history and impacts of immigration to California during 1848-1869 via a storymap.

## Presentations

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### Socially Responsible Language Modelling Research (SoLaR) workshop at NeurIPS 2024 December 2024

- Given poster presentation about the "Mitigating Downstream Model Risks via Model Provenance" paper at NeurIPS workshop in Vancouver, Canada.

### Undergraduate Computer Science Research Symposium (UCORE) | *LLM, AI safety* September 2024

- Given poster presentation about the "Mitigating Downstream Model Risks via Model Provenance" project at a school-level research poster session with 60+ attendees.

### GIS (Geographic Information Science) Day 2022 | *Historical Geography* November 2022

- As an outstanding student project, invited to give an oral presentation at GIS Day hosted by McGill for presenting a story map visualizing the history and impacts of immigration to California during 1848-1869.

## Skills

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**Programming Languages:** Python, Java, C++, C#, HTML/CSS, JavaScript, MATLAB, Bash, OCaml

**IDE/Tools:** VS Code, Eclipse, IntelliJ IDEA, PyCharm, Jupyter Notebook

**Technologies/Frameworks:** Linux, Git, GitHub, GitLab, JUnit, JavaFX, Pandas, Sci-kit Learn, TensorFlow, PyTorch

**Web Development :** XAMPP, React, Node.js

**Databases:** PostGreSQL, DB2, Teradata SQL, Microsoft SQL, SAS

**Video Production :** Adobe Premiere Pro, Adobe Lightroom

**Spoken Languages:** English, Mandarin Chinese(both native fluency), Japanese (JLPT N2)

## Leadership / Extracurricular

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### East2West April 2023 – Present

*Dancer, Editor*

- Danced & edited long videos for a K-pop cover performance crew with a YouTube channel of 1.5 million subscribers, achieving at least 20K views per video.
- Participated in the "2024 K-pop Cover Dance Festival" and won 3rd place in the Canada division.

### K-Rave McGill September 2021 – Present

*Dance Leader*

- Led K-POP dance projects by organizing practice logistics, teaching dances, and giving members weekly individual feedback for improvement to ensure performance quality.
- The stage project led in 2024 won the "Most Audience Favourite" piece.

### McGill University Chinese Students & Scholars Association September 2020 – April 2024

*Vice President Media - Senior Advisor*

- Directed, filmed & edited creative promotion video content for club sponsors (such as Liuyishou Hotpot, Presotea Montreal, etc.) 3 times yearly as a part of the signed discounting contract, to benefit all McGill Chinese students from receiving 10 to 25% off discounts.
- Co-directed Montreal Lunar New Year Gala 2022 with 100+ performers and 15 staff, actively involved in venue booking, auditions, rehearsals, & stage setup.
- Developed webpages on WeChat Official Accounts for 70+ sponsor stores promotion displays; got 1000+ student users.
- Organized member photoshoot for 70 internal members, involving studio visiting & bookings, creative ideas, pose directing & photography.

## References

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**Dr. Doina Precup**

*Associate Professor, School of Computer Science*

**McGill University**

*doina.precup@mcgill.ca*

**Dr. Raja Sengupta**

*Associate Professor, Department of Geography*

**McGill University**

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**Mr. Nicholas Uhthoff**

*Senior Manager, Data Engineering*

**Bell Canada**

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**Dr. Griet Vankeerberghen**

*Associate Professor, Department of History*

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