Ken Kato

www.kenkato.info・ken.kato@mail.utoronto.ca・https://github.com/kkatodus・www.linkedin.com/in/kkatodus

Education

University of Toronto - BASc Engineering Science(MI option) + PEY Co-op   09.2019 - 2020, 2021 - 2025(expected)

Work Experience

AI/Robotics Researcher | LSY Lab - Technical University of Munich   05.2024 -08.2024
Keywords: Robotics, LLM, DM Control, Simulation, ROS2, Stretch3, Mujoco
- Worked towards integrating LLMs into robotic controls to enable semantically nuanced behaviour of human assisting robots
- Developed a simulation environment for the Stretch 3 platform to test out the deployment of RT1 model on the platform
- Integrated RT1 model developed by Google DeepMind on the physical Stretch 3 platform to successfully conduct picking up tasks
- Designed soft-material robotic grippers and iterated on the design to successfully create a motor actuated soft gripper

NLP Researcher | U of T - NLP Research on Quantitative Political Analysis with *Dr.Christopher Cochrane* - Toronto 10.2023 - 04.2024
Keywords: NLP, Data science, LLM, Data visualisation, Research
- Worked as a NLP researcher under co-supervision of Prof. Raeid Saqur and Dr. Christopher Cochrane to work on a paper exploring the use of LLM in the analysis of parliamentary speeches of Japanese legislators to predict their ideological stances in regards to various political topics.
- See publication below for more details.

NLP Researcher | U of T/Vector Institute - NLP on Stock Movement Prediction under *Prof. Raeid Saqur* - Toronto   10.2023 - 04.2024
Keywords: LLM, Data curation, Dataset, Data Science, Research
- Worked as a NLP researcher under the supervision of Prof. Raeid Saqur to apply LLMs to stock price prediction tasks
- See publication below for more details.

SWE Intern | Hellofresh Canada - Toronto, Canada   05.2023 - 05.2024
Keywords: React, Typescript, Frontend development, Agile work environment,
- Accelerated the development of the rapidly expanding web platform for HelloFresh and its sub-brands including ChefsPlate, Factor, GreenChef, and EveryPlate, enhancing global user access.
- Engineered and executed end-to-end tests with Cypress and developed unit tests with React Testing Library to ensure software performance.
- Established monitoring protocols using Honeycomb, implemented Google Analytics tracking, and led A/B testing initiatives with Statsig and Optimizely to optimise user experience and operational efficiency.

Research Fellow | Citizen Lab - Toronto   05.2022 - 05.2023
Keywords: Censorship, Data collection, Data science, Research, Algorithm
- Conducted a comprehensive analysis of censorship mechanisms on Chinese search engines.
- Developed and optimised an iterative search algorithm to refine and identify censored keyword combinations using text data from independent news sources.
- Gathered and synthesised data on censored keywords, revealing a consistent pattern of censorship across various platforms.
- See publication below for the findings

Software Engineer Intern | Kozo Keikaku Engineering Inc. - Tokyo   08.2020 - 06.2021
Keywords: Fullstack development, AI, ML, Data science, NLP
- Contributed to the web application project of the company coding both the backend written in *flask* and frontend written in *HTML, CSS and JS*
- Data analysis using tweets and evaluating the trend visible on the platform Used natural language analysis tools such as *Mecab* and *Gensim* and data analysis modules such as *pandas, matplotlib* and *scipy*
- Implemented deep reinforcement learning models such as *A2C*, *REINFORCE* and *DQN* in python as a company project

Personal Projects

KOKKAI DOC- Analysing Japanese Parliamentary Speech and Voting Data   05.2022 - Present
🔗 Project Link 🌐 Website link ▶ Demo video
Keywords: AI, LLM, Data Science, Data Visualization, Fullstack development, Fine Tuning, React, NodeJS,
- Established an innovative web service dedicated to aggregating and disseminating Japanese parliamentary speech and voting data.
- Employed Large Language Model (LLM) embeddings and statistical techniques to perform quantitative analyses of politicians' speeches.
- Utilised Selenium for data scraping and Python for processing to ensure robust and reliable data acquisition for the platform.
- Enhanced a Hugging Face Large Language Model by fine-tuning it with self-labelled data to accurately classify opinion-based sentences.
- Developed the frontend visualisation of the project using the React framework, integrating the deck.gl package for advanced geospatial data visualisation.

GPT from scratch   07.2022
🔗 Project Link
Keywords: AI, LLM, GPT
- Code was created following a tutorial of Andrej Karpathy, "Let's build GPT: from scratch, in code, spelled out." available here.

Fullstack diary application using Django, React, Psql   06.2021 - 07.2021
🔗 Project Link ▶ Demo video
Keywords: Fullstack Development, React, Django, Psql, Python, Backend, Frontend
- Designed and launched a dynamic app enabling users to manage their diaries, including CRUD operations and picture uploads.
- Engineered a RESTful API using Django and developed the front end with React to enhance user interaction and functionality.

Grade school reunion social media using Django, HTML/CSS and JS   01.2021 - 02.2021
🔗 Project Link ▶ Demo video
Keywords: Fullstack Development, HTML/CSS/JS, Python, Django, Backend, Frontend
- Developed a specialized app for a grade school reunion, featuring photo sharing and chat capabilities for attendees.
- Constructed the backend using Django and crafted the frontend with HTML/CSS and JavaScript to optimize user experience.
- Deployed the application on the web for experimental use, enabling real-time interaction and feedback from users.

Publication

Missing Links - A comparison of search censorship in China

Jeffrey Knockel, Ken Kato, Emile Dirks 🔗 New York Times Article

[L(u)PIN: LLM-based Political Ideology Nowcasting](#)
    (PolMeth 2024 Poster Presentation) Ken Kato, Annabelle Purnomo, Christopher Cochrane, Raeid Saqur

[NIFTY Financial News Headlines Dataset](#)
    Raeid Saqur, Ken Kato, Nicholas Vinden, Frank Rudzicz

Award

[ESROP-GLOBAL Award](#)
- Received funding worth 7000 CAD to conduct research at the Technical University of Munich as an AI researcher over the summer of 2024.

[UofT IE+ Award](#)
- Received funding worth 2500 CAD to conduct research at the Technical University of Munich as an AI researcher over the summer of 2024.

[ESROP-E4TW Award](#)
- Received funding worth 7000 CAD to conduct research at the Citizen Lab over the summer break of 2022.

Other

<u>**Linguistic skills:**</u> **English(fluent), Japanese(fluent), German(fluent)**