

Ti (Tianyu) Guo

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Coding Languages Libraries/Tools

Python, JavaScript, TypeScript, Bash, HTML, Matlab, CSS, SQL, PostgreSQL, Oracle SQL, C/C++
AWS, Watson, GCP, Azure, Node.js, React, Flask, Docker, PyTorch, Pandas, GPT

WORK EXPERIENCE

Sparkcraft | Co-founder – Gen AI Consulting & Dev

Waterloo, Jul.2023 – Now

- Developing Demos for City of Waterloo official Chatbot and Voicebot, Gen AI document analysis dashboard for users in the United Nations, Gen AI book translation pipeline for users at the Vipassana Meditation Center, and Gen AI conference app for members at Genius Network

IBM | Data Scientist – NLP & Data Science & Data Eng

Toronto, Mar.2021 – Jul.2023

- Founded & Managed & co-authored IBM Consulting's Official Global Gen AI Community, Guide, Project Database, Use Case Hub, and Point of View site. Led 100+ co-authors and 4000+ community members, reported directly to C-level Executives**
- Provided Generative AI Data Science consulting to 3 renowned client companies.** Applied OpenAI Codex, GPT3.5 Turbo, Bloom, and Fine-tuned BERT for multiple client demos. Designed LLM-based solution pipeline for chatbot, and search applications
- As the **Lead NLP Data Scientist and Data Analyst** for an enterprise NLP Document Search solution from demo to **production with 10k+ users**; used IBM Cloud, Watson Discovery, Node.js, TypeScript, Python; designed & built an automated relevance training pipeline that sped up data science iteration cycle by 10X+; **led create key results that helped secure 3M\$+ contract**
- As the **main AI Engineer and MLOps**, developed and deployed **3 complex image processing pipelines** with **1.2M\$+** in combined project value, achieved beyond the target precision & recall. Fine-tuned Faster RCNN and GoogLeNet
- As the **main AWS DevOps, and MLOps**, in charge of setup, optimizing, and deployment of the Pilot stage cloud infrastructure of an end-to-end cloud-based machine-vision-pipeline-as-a-service product, used Terraform, Sagemaker, Amazon MQ, Fargate, ECR, EC2, Lambda, and more, that integrated **40%+ of sub-services for a \$4M+ project scheduled to be deployed to 10M+ users**
- Organizer / Co-author of Blog site and Workshop series on Watson Discover, IBM Productivity Hacking Wiki and Workshop series, and Effective Altruism IBM. Represented IBM as a speaker at multiple AI or Tech Conferences

IBM | IoT & AI Intern - Full Stack & Data Science & DevOps & MLOps

Toronto, Jan.2019 – Aug.2019

- Developed & maintained a full-stack on Edge and Mobile for a blockchain-based asset management platform, used **React, Node.js, Flask, MongoDB on IBM Cloud** & enabled asynchronous processing of requests via HTTP & MQTT. Reducing operation time by 60% with innovative cross-device multithread communication software architecture
- Analyzed**, researched, and implemented the Electricity-Prediction-related algorithms for evaluating reliability and sharpness for Time Series Probability Forecast, including ARIMA, Kupiec, Conditional Coverage, and Pinball Loss algorithms using Python
- Reduced processing time by 90%** & patent application in process for a CV algorithm for extracting shipping labels information
- Debugged IBM Cloud's data monitoring service, worked with internal dev teams remotely to troubleshoot Kibana data pipeline
- Organized an 8-week office-wide lunch workshop on "Life Design" and other events as IBM Canada's Future Blue Interns Lead

North (Google VR) | Prototyping Intern - Full Stack & Data Eng & Data Analyze

Waterloo, Sep.2017 – Dec.2017

- Developed & tested frontend prototype of 3D map and the integration of AI Voice Assistant prototype into a large codebase
- Automated UI workflow to frontend modules conversion. Used Node.js & Framer.js. Sped up UI prototype deployment by 90%
- Organized usability testing sessions & followed closely with 6 active users, refined UX workflow based on **user data analysis**

Medella Health (20 under 20 Thiel Fellow Startup) | Robotics Intern

Waterloo, Jan.2017 – Apr.2017

- Built a 4-axis fabrication robot with a centralized control system, providing a 90% reduction in glucose sensor fabrication speed
- Automated 45% of operation processes for sensor assembly robots through a chatbot-like software interface

Khazanah (Venture Capital) | Innovation Intern - Prototyping & Investment Analyst

SF, May.2016 – Aug.2016

- Analyzed 70+ SF Bay Area tech startups' technical and product competencies, for Venture Capital investment purposes
- Programmed an embedded laser-graffiti system implementing auto color search & homographic transformation in OpenCV

PROJECTS

Alter Ego | Founder | Memory-Improvement LLM-Based Recommendation System Waterloo, Jan.2021 – Now

- Developed a **BERT & GPT based semantic search & recommendation algorithm** to remind user of the most related flashcards based on real time TODO-list items, achieved 75%+ precision on relatedness, and Flask backend for data-aggregation

OpenPrinciples.org | Founder | World's Largest Open-Sourced Database of Principles Waterloo, Nov.2020 – Now

- Built the **end-to-end NLP data processing pipeline** to crawl principles from book summaries and quotes
- Organized 2 cohorts, with total of 40 people OpenPrinciples Fellowship, improved participants' "principledness" by 44%

Retroware | Co-founder | 3D Vehicle Interior Design Site Waterloo, May.2020 – Feb.2021

- Within 10 days before YC interview, made and led a team 5 part-time developers and 2 UI designers to build up a functioning 3D interior design site prototype for RV retrofitting shops in three.js, reached out and setup with 1 retrofitting shop within Waterloo

Forest | Co-founder | Self Driving Road Scenario Filtering System Waterloo, Jul.2019 – Apr.2020

- With a team of 4, developed user-facing APIs, Django servers and **computer-vision-based** anomaly detection algorithms to **filter and auto labeling large amounts of self-driving sensor data**, also passing data between databases and Object Storage

Jobify | Creator | NLP Job Search Assistant San Francisco, Jul.2018 - Aug.2018

- Implemented real-time keyword search algorithm on DOM content and dynamic elements that float on any webpages
- Created an inject script to insert custom content into users' browsers allowing them to view the score of the job

Busboy Inc. | @Founder Institute Incubator | Intelligent Coupon Tracking System Waterloo, Jul.2016 – Aug.2017

- Launched a SAAS based mobile coupon tracking system with 2 client locations, amassed a 2200+ audience
- **Analyzed large user activity data** and key metrics for A/B testing, which resulted in a 600% increase in ads conversion rate
- Developed and tested **React-based** frontend and UI & UX specs for web-based coupons and client website

Natruwake Smart Pillow | Creator | Sleep Phase Augmentation System Waterloo, Jan.2015 – Aug.2016

- Led a team of 10; developed timer interrupt-based embedded software architecture for multi-tasking usage using C
- Analyzed and forecasted stages of sleep by applying smoothing and linear regression on time series pressure sensor data

Viking Robotics | Co-President | Autonomous Racing Robot Waterloo, Jul.2014 – Aug.2015

- Developed robot's Mapping and sensor-fusion algorithm combining ultrasonic, infrared, Gyroscope, motor encoders sensors
- Led a team of 15, won **2nd place world-wide** in the International Autonomous Robot Racing Competition, as Hardware Lead

INTERESTS

- Into Community Building, Effective Altruism, Technological Singularity, AGI Timeline, AI Safety, Piano, DIY, backpacking, reading
- Co-organizer of **PyTorch Bootcamp Waterloo**, **AI Safety Camp Toronto**, Effective Altruism Waterloo Chapter, Goldenkey Co-living Community, and over 25 online and in-person mastermind groups, see examples [here](#).

EDUCATION

University of Waterloo | B.A.Sc., Honours Mechatronics Engineering Sep.2015 – Jun.2020

- Coursework: Algorithms & Data Structures, Concurrency & Synchronization, ML/AI, Computer Vision, Robotics

EMPLOYER COMMENTS

"Ti is super dependable and is able to own the task in its entirety. There have been many times that Ti has demonstrated his commitment to the task at hand and the project overall by staying late into the night to get it done. His passion and commitment have been recognized and been a core component of the project's success to date."

-- Yusuf Mai, Lead IoT Architect @ IBM Canada

"Ti is an enthusiastic and selfless contributor to the team. Throughout the term, he was committed to and made good process suggestions to improve the effectiveness of our team. One area in which Ti excelled was in engaging others throughout the software organization to embrace the prototyping ethos. He organized and facilitated workshops on both personal productivity and iterative software development that was very well received."

-- Lee Payne, Software Team Lead @ North & Google VR

"Ti is the **best student I have worked with** out of the past 17 coop students that were hired on our team."

"Ti will always want to tackle the most important problem first and the extra care he shows makes him a great addition to the team! **If there is any doubt, I encourage you to contact me.**"

"Ti is a pleasure to work with, open to guidance and **has a very clear direction and purpose.** Ti is methodical in regards to documenting and reporting results. He considers all possible alternatives and is diligent in keeping the company directives in mind when planning and carrying out his objectives. His team dynamics are also excellent, as are his communication skills. **He is truly committed to assisting us in improving health outcomes by creating a focused and profitable enterprise.**"

-- Maarij Baig, Chief Scientific Officer @ Medella Health