Javier Huang

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Overview

Software Development and Engineering Experience	Software Development and Engineering Skills
• **Salesforce Certified MuleSoft Developer** • 2+ years of experience performing data analysis, as well as building, training, and evaluating **Machine Learning (ML) models** using ML libraries, and integrating **Artificial Intelligence (AI) model APIs** into real-world applications • 3+ years of full-stack software development experience with **cutting-edge** industry-relevant programming languages and frameworks • 3+ years experience in designing **database schemas and relations**, building **APIs**, user authentication, authorization **access control**, and **application security** • 3+ years of experience in deploying and monitoring **applications on the cloud**, including analytics integration and performance tracking • 4+ years in **FIRST Tech Challenge (FTC)** robotics, developing **robotic control systems and automation solutions**, implementing computer vision for object detection and localization using **TensorFlow** and **OpenCV**, and designing and building robots. • **Professional certifications** in AI, Machine Learning, Data Science, MuleSoft, dbt, Snowflake, Databases, Azure APIM, AWS, Application Security, and MATLAB • Professional certifications in ML algorithmic trading and investing courses (Stocks, ETFs, Index/Mutual Funds)	• **Languages:** HTML, CSS, JavaScript, TypeScript, JSX, TSX, Svelte, Java, Python, C++, C#, C, SQL, DataWeave, RAML, YAML, XML, JSON, CSV, Jinja, Matlab, GDScript • **Front End Frameworks:** Angular, SvelteKit, Next.js (React), Flutter. Streamlit, Figma • **Back End Frameworks:** Spring Boot, NodeJS, Django • **APIs**: Built CRUD Mulesoft REST APIs, Spring Boot RESTful APIs, Spring Boot Microservices, Dockerized containers on Kubernetes, Supabase Edge Functions • **Cloud Computing Platforms:** AWS, Azure, GCP • **Cloud Backend APIs (BaaS):** Supabase, Firebase, Firestore • **Third-Party APIs & Libraries:** OpenAI (AI), Hugging Face (AI), Cohere (AI), Google Maps, OANDA API, IKBR API • **Libraries:** Tensorflow (ML), PyTorch (ML), Scikit-Learn (ML), NumPy (Data), Pandas (Data), Matplotlib (Data), Seaborn (Data), OpenCV (Computer Vision), SpaCy (NLP), Hugging Face Transformers (NLP), Tesseract OCR, EasyOCR, React, Three.js (3D Rendering), Logback • **Databases & Data Engineering:** dbt, ETL/ELT, Snowflake, AWS S3, Supabase (Cloud PostgreSQL), Firestore, MongoDB, PostgreSQL, pgAdmin, MySQL, MySQL Workbench • **Methodologies:** Jira, Agile methodology • **Developmental Tools:** Anypoint Studio, Anypoint Platform, Spring Tool Suite, Visual Studio Code, Pycharm, Android Studio, Kaggle, Google Colab, Vim, Neovim, Git, GitHub, Cloudflare Pages, Vercel, Azure APIM, Azure Kubernetes Service (AKS) **3D Modelling and Computer-Aided Design (CAD):** • Blender, Autodesk Fusion360, OnShape

Work / Professional Experience

Machine Learning Developer Intern at BuildingAssets October 2025 - Present

- Developing AuditMate, an AI-driven web and mobile platform that automates building energy audits by guiding users through assessments and analyzing results with object detection, OCR, and LLMs.
- Performing data analysis and image preprocessing. Building and integrating machine learning and deep learning pipelines that support both professional auditors and individual clients, enabling self-serve and guided audit experiences.
- Deploying the full cloud-based architecture using AWS EC2 and integrating AI services with Next.js and Flutter frontends to deliver scalable, accessible applications.

[Technologies] *Python, PyTorch, TensorFlow, OpenCV, AWS Lambda, AWS EC2, AWS S3, REST APIs, Supabase, Next.js, React, Flutter, GitHub*

Technology Director at GenAI Genesis October 2025 - Present

- Full-stack developer for GenAI Genesis 2026, Canada's largest AI hackathon, with 600+ hackers in 2025.
- Developing, revamping, and maintaining the event website and platforms for participants and judges.
- Designing and developing database schemas, secure REST APIs with role-based access control, user interfaces, as well as Discord bots, chatbots, and Chrome extensions to streamline workflows. Developing hiring and application review systems for organizers.
- Collaborating with cross-functional teams to ensure smooth event operations.

[Technologies] *Next.js, React, Supabase, Content Management Systems (CMS), Figma, Git*

Machine Learning Project Team Lead at UTMIST August 2025 - Present

- Leading the development of the SceneClarity ML project, an interpretable reliability scoring pipeline for autonomous vehicles, delivering an end-to-end system that quantifies and attributes perception failures under adverse visual conditions.
- Managing and collaborating with developers using Jira to track progress, assign tasks, and manage workflows within 3 subteams in performing dataset preparation and analysis, object detection (YOLOv11, RT-DETRv2, etc.), lane detection (LaneNet), glare, weather and time-of-day classification (MobileNetV3, ResNet-50, etc.), unsupervised failure mode attribution (KMeans, GMM, etc.), reliability score aggregation, as well as final deliverables which include containerized REST APIs and a React web application.
- Presented SceneClarity to stakeholders at different events and conferences, including the EigenAI Conference.

[Technologies] *PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, Jupyter Notebook, Google Colab, YOLOv11, LaneNet, MobileNetV3, ResNet-50, KMeans, GMM, Docker, Azure AKS, REST APIs, Next.js, React, GitHub, VSCode, Jira*

Machine Learning Developer at UT BIOME September 2025 - Present

- Developing ML pipelines for the Functional Gene Expression Analysis project to identify disease biomarkers, and training predictive models for autoimmune diseases such as Rheumatoid Arthritis.
- Researching and analyzing gene data from various datasets, evaluating and fine-tuning classification models including Random Forest, Logistic Regression, SVM, and Ridge Classifier for data-driven feature discovery and providing insights into disease mechanisms and treatment strategies.

[Technologies] *Scikit-learn, Pandas, NumPy, GEOparse, Pyensembl, Mygene, Biopython, HPA API, Jupyter Notebook, Google Colab, GitHub*

Mod Developer of Starblast.io August 2021 - Present

- Official contributor and modder of the starblast.io game. Developed the official "Capture the Flag" mod, which has been played over 2 million times, improving performance and engagement.
- Developed multiple mods using the Starblast.io API, implementing real-time game logic in JavaScript with WebSockets, and designing custom 3D ships using CoffeeScript for Three.js rendering.
- Iteratively improving gameplay through playtesting, player feedback, and innovative solutions to modding constraints.

[Technologies] *Starblast Mod Editor, JavaScript, CoffeeScript, GitHub, VSCode*

Mentor & Programming Lead of FIRST Tech Challenge (FTC) Robotics Teams September 2021 - Present

FTC 16488 - Rams Robotics | Mentor, Senior Programmer, Builder & Designer

FTC 22101 - Lambs Robotics | Mentor, Senior Advisor, Programming Lead

- Mentored FTC teams 16488 & 22101 and led the development of autonomous systems, including path planning, PID robotic control, and computer vision via Tensorflow and OpenCV
- Designed robot components through CAD using Fusion 360 and OnShape
- Developed simulations and state machines for complex behavior modeling
- Played a key role in winning numerous awards, including top honors at the Ontario Provincial Championships and Innovate/Design Awards.

[Technologies] *Tensorflow, OpenCV, Java, FTC SDK, Python, OpenCV, Fusion360, OnShape, GitHub, Trello Kanban, Slack*

Founder, President, and Full-Stack Developer of Course Digital Sep. 2023 - Sep. 2025

- Led, trained, and supervised a team of tutors to teach students in programming, STEM, and languages. Adjusted course trajectory based on student feedback. Developed marketing initiatives to expand the organization's reach, positively impacting 300+ students across 50+ schools in Ontario.
- Designed and developed the web platform using the SvelteKit framework. Engineered intuitive database schemas and relationships in the Firestore cloud database to support core app functionality such as user management and course enrollment. Continuously improved the user experience based on user feedback.

[Technologies] *SvelteKit, Firebase authentication APIs, Firestore cloud database, GitHub, VSCode, Cloudflare Pages*

Vice President of School Coding Club September 2021 - May 2025

Led and expanded coding club initiatives across ML, Web, Game Development, Competitive Programming, and Python. Organized hackathons, competitions, and managed the executive team.

Part-Time STEM Tutor at Upper Markham Learning Center June 2024 - June 2025

Taught coding, robotics, competitive programming, and high school STEM subjects. Managed diverse classrooms and adapted strategies to individual student needs while keeping parents updated on progress.

Director of the Coding Section at FutureEd 4 Kids (Non-profit) July 2023 - September 2024

Led the coding section at the non-profit organization FutureEd 4 Kids, managing mentors and organizing team meetings. Designed new programming courses to expand the coding section in the organization. Taught students in engaging and interactive classes.

Projects

Machine Learning & AI Integration [6 projects as detailed in my personal portfolio]

Deep Learning YOLOv11 Aerial Object Detection - GitHub Repo August 2025

- Built an end-to-end deep learning aerial object detection pipeline on the DOTA v1.5 dataset using transfer learning with YOLOv11 Nano.
- Implemented image tiling to preserve resolution with OBB annotation handling, polygon-to-YOLO format conversion, and class mapping.
- Trained and evaluated the model with visualizations, loss curves, and confusion matrices, and documented the full workflow in a Google Colab-hosted Jupyter Notebook.

[Technologies] *Python, NumPy, OpenCV, PyTorch, YOLOv11, Matplotlib, Google Colab, GitHub*

Deep Learning Skin Lesion Classification - GitHub Repo August 2025

- Developed an end-to-end deep learning pipeline for multi-class skin lesion classification using the HAM10000 dataset, using transfer learning with MobileNetV2 as the backbone.
- Addressed severe class imbalance through targeted data augmentation and stratified train/validation/test splits.

- Evaluated model performance with accuracy, loss curves, and confusion matrices to identify common misclassifications.
- Developed and documented the end-to-end workflow, challenges, and results in a Google Colab-hosted Jupyter Notebook.

[Technologies] *Python, TensorFlow/Keras, NumPy, Pandas, MobileNetV2, Matplotlib, Google Colab, GitHub*

Machine Learning Power Consumption Prediction - GitHub Repo July 2025

- Developed an end-to-end machine learning pipeline for Wellington Zone 1 Power Consumption Predictions using a Kaggle dataset of environmental and time series factors.
- Performed feature engineering, model evaluation, and selected Ridge Regression, which had the best score and speed, achieving an R^2 score of 0.9963 on the test set with 382 ms prediction time.
- Developed and documented my workflow and experimentation step-by-step in a Jupyter Notebook.

[Technologies] *Python, pandas, NumPy, scikit-learn, Matplotlib, Anaconda, Jupyter Notebook, GitHub*

StackDAG - Link | Video Demo May 2025 - Present

- Designed and developed StackDAG, a full-stack AI-integrated web application in public beta testing built with Next.js (React), Firebase authentication, and a Supabase cloud PostgreSQL database with Supabase Edge Functions for REST request processing and API security.
- Enables users to view, create, share, fork, and upvote Directed Acyclic Graphs (DAGs) representing technology stacks. Integrated the OpenAI API to provide layer-by-layer setup and integration guidance for each DAG and added a tutorial mode for easy onboarding of new users.
- All DAGs and AI-generated instructions are stored in the Supabase cloud PostgreSQL database for fast retrieval and storage.

[Technologies] *Next.js React framework, Tailwind CSS, Firebase authentication APIs, Supabase PostgreSQL cloud database, Supabase Edge Functions, OpenAI API, GitHub, VSCode*

Tourista - Hackathon Devpost September 2023

- Tourista is an AI-driven travel guide that offers personalized travel recommendations.
- Integrated Cohere's AI API for intelligent location suggestions, Google Maps APIs for dynamic route mapping, and implemented Firebase authentication with clear, user-friendly messaging.

[Technologies] *SvelteKit framework, Cohere APIs, Google Maps APIs, Firebase authentication APIs, GitHub, VSCode*

Business & Education [4 projects as detailed in my personal portfolio]

Buzby - Link | Video Demo | Info Presentation May 2024 - September 2024

- Designed and developed Buzby, a full-stack SvelteKit web application with Firebase authentication and Firestore integration to streamline group project collaboration.
- Defined features and database schemas based on survey data, building user-friendly frontend components like project invitations, live chat, task lists, Gantt charts, and calendars.
- Continuously refined the app through beta testing and real-world user feedback from the International Baccalaureate Collaborative Sciences Project.

[Technologies] *SvelteKit, Firebase authentication APIs, Firestore cloud database, GitHub, VSCode, Cloudflare Pages*

Partner Sphere - Link | Video Demo December 2023 - February 2024

- Partner Sphere is a web application for managing and visualizing business partnerships, awarded 5th place nationally at the 2024 FBLA CNLC Coding & Programming event.
- Developed the full-stack application using SvelteKit with Firebase authentication and Firestore for data management.
- Designed efficient database schemas, implemented searchable and pageable partner catalogs with CRUD pop-ups, created PDF export functionality, and built a 3D spatial visualization of partners using Three.js. Hosted on Cloudflare Pages.

[Technologies] *SvelteKit, Three.js library, Firebase auth APIs, Firestore cloud database, GitHub, VSCode, Cloudflare Pages*

RamsEvents - Info Presentation December 2022 - February 2023

- RamsEvents is a full-stack web application that promotes student involvement by rewarding participation in school activities, awarded 7th place nationally at the 2023 FBLA CNLC Coding & Programming event.
- Built with Angular, Spring Boot, and PostgreSQL, it features Firebase authentication, secure role-based access control, and scalable RESTful APIs.
- Implemented a modular, searchable, and paginated data table with logic for managing students, clubs, and event winners, along with a PDF report generator categorized by grade.

[Technologies] *Angular frontend framework, Spring Boot backend framework, RESTful APIs, PostgreSQL database, Firebase authentication APIs, GitHub, VSCode*

Online Web Games [3 projects as detailed in my personal portfolio]

IFT-X - Link | Video Demo March 2024 - January 2025

- IFT-X is a 3D web game for rocket enthusiasts that simulates SpaceX's Starship customization and testing process.
- Developed interactive 3D features using SvelteKit and Three.js, hosted on Cloudflare Pages.
- Designed and implemented a seamless UI, created a custom physics engine simulating realistic rocket flight dynamics, 3D PID controllers for autonomous vehicle landing, and integrated the Nebula particle system for advanced 3D effects.

[Technologies] *SvelteKit framework, Three.js library, Cloudflare Pages*

Professional Certifications

Project Management

- Jira Fundamentals for Agile Projects | Udemy — October 4, 2025

AI, Machine Learning, and Data Science

- Natural Language Processing in Python | Udemy — August 24, 2025
- Algorithmic Trading A-Z with Python, Machine Learning & AWS | Udemy — August 15, 2025
- Complete A.I. & Machine Learning, Data Science Bootcamp | Udemy — July 02, 2025

Mulesoft

- Salesforce Certified MuleSoft Developer | Salesforce — August 03, 2025
- MuleSoft 4.X Complete Guide For Beginners - Hands On Projects | Udemy — July 17, 2025

Cloud Platforms & Security

- Application Security - The Complete Guide | Udemy — August 04, 2025
- Azure API Management Masterclass | Udemy — July 21, 2025
- Introduction to AWS | Udemy — July 18, 2025

Investment & Finance

- Complete Investing Course (Stocks, ETFs, Index/Mutual Funds) | Udemy — July 28, 2025

Databases & Data Engineering

- MATLAB Onramp | MathWorks — August 30, 2025
- dbt Fundamentals | dbt Labs — July 03, 2025
- Databases: Semistructured Data | Stanford School of Engineering, StanfordOnline — June 25, 2025
- Databases: OLAP and Recursion | Stanford School of Engineering, StanfordOnline — June 21, 2025
- Databases: Advanced Topics in SQL | Stanford School of Engineering, StanfordOnline — June 18, 2025
- Databases: Relational Databases and SQL | Stanford School of Engineering, StanfordOnline — June 16, 2025
- Databases: Modeling and Theory | Stanford School of Engineering, StanfordOnline — June 14, 2025
- Snowflake Hands On Essentials - Data Engineering Certificate | Snowflake — July 10, 2024
- Snowflake Hands On Essentials - Data Lake Certificate | Snowflake — July 08, 2024
- Snowflake Hands On Essentials - Data Sharing Certificate | Snowflake — June 30, 2022
- Snowflake Hands On Essentials - Data Applications Certificate | Snowflake — June 27, 2022
- Snowflake Hands On Essentials - Data Warehouse Certificate | Snowflake — June 19, 2022

Education

University of Toronto, Engineering Science, Machine Intelligence Major September 2025 - May 2029

The Machine Intelligence major in Engineering Science is a globally prestigious program grounded in advanced mathematics, computation, computer hardware, and software engineering, with a specialized focus on artificial intelligence, machine learning, big data analysis, and complex real-world engineering challenges. Read more here.

St. Robert Catholic High School, International Baccalaureate Diploma September 2021 - June 2025

Top IB Graduate (98.7% avg) - HL Math AA: 7, HL Physics: 7, HL Chemistry: 7, SL English Literature: 7, SL French: 7, SL Economics: 6

Awards

School Awards

- University of Toronto 2025 National Book Award
  For outstanding academic performance and active engagement in schools and communities.
- St. Robert Catholic High School 2025 Graduation, IB Sustained Academic Achievement Award
  For demonstrating continuous academic success throughout the IB Diploma Programme
- St. Robert Catholic High School 2025 Graduation, IB CAS Award
  For best exemplifying the spirit of Creativity, Activity, and Service (CAS) in the IB Diploma Programme

Robotics, Computer Programming, and Business Awards

- Robotics FTC 2024-2025 Season | Team 16488, Ontario Provincials, Design Award 2nd Place
- Robotics FTC 2023-2024 Season | Team 16488, Ontario Provincials 2nd Place, Innovate Award 1st Place
- CEMC 2023 Canadian Computing Competition (CCC) Junior, 1st Place with full marks (75/75), Student Honour Roll Group 1
- FBLA CNLC 2024, Coding and Programming Event, 5th Place in National Finalist | Project - PartnerSphere
- FBLA CNLC 2023, Coding and Programming Event, 7th Place in National Finalist | Project - RamsEvents
- GooseHacks 2023, 2nd Place winner, out of around 200 international participants | Project - AtomVerse
- United Hacks 2023, Top 5 winner, out of around 400 international participants | Project - MarsAttack.io

Science & Math

- 7th Canadian Young Physicists' Tournament (CaYPT) 2023, Team Schwarzschildren, First place with Gold Medal
- British Biology Olympiad 2024 Competition, Gold Winner
- 2024 Chemistry Avogadro Contest, Outstanding Achievement Award
- 2024 CEMC Hypatia Math Contest, Student Honour Roll