

Rakesh Bhatia

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SUMMARY

ML engineer and full-stack builder with a strong computer engineering foundation and hands-on experience shipping Python, data, and web systems. Built Axon Review, a production ML-powered AI news intelligence platform using FastAPI, PostgreSQL/Supabase, SvelteKit, classification, clustering, and NLP/NER workflows. Combines client-facing freelance delivery, deep data engineering experience, and practical ML implementation for fixed-scope AI, data, and backend projects.

SKILLS

Programming: Python, SQL, JavaScript/TypeScript, HTML/CSS, C++, Perl

Backend & APIs: FastAPI, SQLAlchemy, Pydantic, REST APIs, async Python, Alembic, Node.js

ML & Data Science: scikit-learn, pandas, NumPy, TensorFlow, Keras, model evaluation, regression, classification, clustering, feature engineering, statistical analysis

NLP & Information Systems: text classification, entity extraction/NER, embeddings, story clustering, search/filtering workflows, TF-IDF pipelines, NLTK, spaCy

Databases & Infrastructure: PostgreSQL, Supabase, MySQL, Redis/Valkey, Docker, Git, Linux/VPS deployment, Cloudflare Pages, Vercel

Automation & Scraping: BeautifulSoup, Selenium, web crawlers, data extraction, ETL-style pipelines, Jupyter Notebook

Frontend: SvelteKit, responsive UI, Tailwind CSS, HTML/CSS, JavaScript dashboards

PROFESSIONAL EXPERIENCE

Founder / Full-Stack ML Engineer | Axon Review | Fremont, CA | Sep 2025 - Present

- Architected and deployed a production AI news intelligence platform with a FastAPI backend, SvelteKit frontend, PostgreSQL/Supabase data layer, paginated article feeds, search/filter workflows, telemetry, and admin triage tooling.
- Built ML/NLP pipelines for AI-news classification, named entity extraction, and story clustering, turning fragmented article streams into organized narratives and trend surfaces for faster information discovery.
- Designed the system around practical production constraints: simple deployment, cost-efficient inference, maintainable data models, API security, rolling news windows, and user-facing performance across desktop and mobile layouts.

Math Instructor (Part-Time) | Mathnasium | Union City, CA | 2024 - Present

- Reinforced and clarified mathematical concepts foundational to machine learning, including statistics, probability, calculus, and linear algebra.
- Developed strong communication and mentorship skills by breaking down complex quantitative problems into simple, digestible steps for students with varying skill levels.

Freelance Python Developer | Upwork & Independent Contracts | 2017 - 2020

- Delivered web scraping, data extraction, and data management solutions for clients across manufacturing, real estate, and research-oriented workflows.
- Engineered a Python web crawler to extract material property data for over 50,000 materials, storing nearly 1 million data points in a MySQL database.
- Designed and built a full-stack web application using Node.js, HTML, CSS, and JavaScript to help users filter and visualize extensive material data.
- Automated extraction of foreclosure home listings from multiple sources using Python, BeautifulSoup, and Selenium.

Software/Analog Engineer | Intel Corporation | 2013 - 2016

- Developed Python and Perl scripts to automate hardware functionality testing and extract critical manufacturing data, improving data accessibility and process efficiency.
- Built a C++ SPICE netlist parser and analog fault injection flow for comprehensive testing and validation of analog circuits.
- Designed a hierarchy file generator using a breadth-first search algorithm to streamline circuit analysis.

Associate Engineer | Space Systems/Loral | 2010 - 2012

- Used CAD tools to design waveguide transformer components for satellite programs.
- Applied optimization techniques to develop microstrip filters for RF circuit blocks.

SELECTED PROJECTS

Axon Review - ML-Powered AI News Intelligence Platform

- Built and deployed a full-stack AI news aggregator with ML classification, story clustering, NER, advanced filtering, source metadata, and admin review workflows.

Automating Port Operations Using Deep Learning

- Built a computer vision workflow for boat-type classification using a custom CNN and MobileNetV2 transfer learning, demonstrating image preprocessing, model training, and comparative evaluation.

Creating Cohorts of Songs - Unsupervised Learning

- Applied clustering and exploratory analysis to group songs into meaningful cohorts based on feature similarity, demonstrating segmentation logic applicable to customers, products, and recommendations.

Retail Sales Analysis - Business Analytics

- Analyzed apparel sales data across state, demographic, and time-based dimensions to identify performance patterns and expansion opportunities.

Rails REST API Foundations

- Built legacy Ruby on Rails API and full-stack training projects covering authentication, serializers, CRUD workflows, and web application fundamentals.

EDUCATION

- Purdue University / Simplilearn - Post Graduate Program in AI and Machine Learning, 2024 - 2025
- Thinkful - Certificate in Data Science, Specialization in Deep Learning, 2019 - 2020
- University of California, Santa Barbara - M.S. Computer Engineering, VLSI and Computer Architecture, 2012 - 2014
- University of California, Los Angeles - B.S. Electrical Engineering, Signals and Systems, 2005 - 2010

Available for fixed-scope ML, Python, FastAPI, NLP, and data workflow projects.