

# Raj Pulapakura

## Full Stack Software Engineer

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[medium.com/@raj.pulapakura](https://medium.com/@raj.pulapakura) | [youtube.com/@rajpulapakura9119](https://youtube.com/@rajpulapakura9119) | [developeraj.vercel.app](https://developeraj.vercel.app)

## Technical Skills

Frontend + Backend Development	TypeScript, React.js, Next.js, Vercel, JavaScript, HTML, CSS, Tailwind, Material UI, Redux, Zustand, Node.js, REST APIs, Express.js, GraphQL, ApolloGraphQL, Redis, TypeORM
Cloud and Infrastructure	AWS (ECR, EKS, EC2, S3, API Gateway, IAM, DynamoDB, Lambda, Athena, Glue), GCP (Vertex AI), BentoML, Terraform, Firebase, Git, GitHub, Docker, Kubernetes, Shell
Mobile App Development	Flutter, Dart
Database	SQL, MySQL, PostgreSQL, MongoDB, AWS DynamoDB, Firebase Firestore, Firebase Realtime Database
Machine Learning and Data Science	Python, TensorFlow, TensorFlow JS, TensorFlow Lite, Keras, PyTorch, Scikit-learn, OpenCV, Hugging Face, NumPy, Pandas, Matplotlib, Plotly, Seaborn, ChromaDB, Langchain, OpenAI API

## Certifications

• <b>Database and SQL for Data Science with Python</b> , IBM	Dec 2023
• <b>Deep Learning Specialization</b> , DeepLearning.AI	Dec 2023
• <b>Advanced Machine Learning on Google Cloud</b> , Google Cloud	Nov 2023
• <b>IBM Professional Machine Learning Certificate</b> , IBM	Sep 2023
• <b>TensorFlow Developer Certificate</b> , TensorFlow	Aug 2023

## Work Experience

### Algorithm, Melbourne

Jan 2024 - Present

#### Software Engineer

- Designing and implementing interfaces and APIs with payments infrastructure using modern web development technologies including Next.JS and JavaScript, working on both frontend and backend.
- Developing Python scripts to process geospatial and agricultural data from AWS S3 cloud into reports.
- Engineering pipelines to log user activity through AWS S3 and AWS API Gateway for customer support.
- Technologies: *Next.JS, TypeScript, JavaScript, AWS S3 API Gateway S3 ECR Athena Glue Lambda, Python, Stripe, Firebase, Git*

## Project Work

### Footwear Ecommerce Website, [code](#)

Project Overview: Developed a full-stack ecommerce website for footwear customers.

- Features include account creation, full-text product search, and payments integration with Stripe.
- Developed backend infrastructure to handle API requests and an authentication cache, using GraphQL and Redis, and a database system with MySQL and TypeORM.
- Deployed the website and backend using modern containerization tools Docker and AWS ECR.
- Technologies: *React.js, JavaScript, Material UI, Stripe, GraphQL, Redis, MySQL, TypeORM, Docker, AWS ECR*

## Computer Vision-Powered Search Engine, [code](#), [web](#), [video](#)

*Project Overview:* Engineered a full-stack website enabling users to drag and drop an image and find similar images using a Siamese neural network.

- Deployed the model through a REST API backend built with BentoML and hosted using automated Terraform infrastructure through AWS API Gateway and AWS Lambda.
- Developed a web interface using Next.js, TypeScript and Vercel, with drag-and-drop functionality and a beautiful grid layout.
- Used a pre-trained MobileNetV3 neural network in PyTorch to compute image embeddings.
- Technologies: *Next.js, TypeScript, Vercel, Tailwind CSS, TerraForm, AWS API Gateway, AWS Lambda, Python, PyTorch, REST API, BentoML, Git, GitHub*

## Natural Language Processing (NLP) Text Toxicity Checker, [code](#), [web](#), [model](#)

*Project Overview:* Developed a neural network and web interface for users to check their text for toxicity across 6 toxicity categories (toxic, severe toxic, obscene, threat, insult, identity hate).

- Developed a web interface using Next.js (deployed with Vercel), TypeScript and Tailwind CSS, which enables users to enter their text and get a toxicity rating.
- Employed TensorFlow to train a text classification model using LSTMs, on 60 MB of textual data.
- Quantized the model using TensorFlow Lite and TensorFlow JS for efficient edge-device inference and stored the model shards in a GitHub repo.
- Technologies: *Next.js, TypeScript, Vercel, Tailwind CSS, Git, GitHub, Python, TensorFlow, TensorFlow Lite, TensorFlow JS, Kaggle*

## Other

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- Contributed to the open-source packages TensorFlow and Scikit-learn on GitHub.
- Write a technical blog on [Medium](#), sharing content on web development, software development, machine learning, deep learning and computer vision.
- Post videos on my [YouTube](#) channel, demonstrating my projects and sharing knowledge on machine learning, data science, and web/mobile development.