Dev Patel

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Education

University of Florida Aug 2022 - May 2024
Master of Science in Computer Science; GPA: 3.8 / 4.0 Gainesville, FL, United States

Dharmsinh Desai University Aug 2018 - May 2022
Bachelor of Engineering in Computer Engineering; CGPA: 8.9 / 10 Nadiad, GJ, India

Skills

- **Languages:** Python, Java, TypeScript/JavaScript, SQL | (Familiar: Go, Rust, C++, C#, Dart)
- **Frameworks:** FastAPI, Flask, Node.js, Express, Next.js, React, Flutter
- **Cloud/DevOps:** AWS (EC2, ALB, RDS, S3), GCP (Cloud Run, AlloyDB), Docker, Kubernetes, GitHub Actions, Nginx
- **Data/ML:** PostgreSQL, MySQL, Redis, MongoDB, Pinecone, PyTorch, MLOps, Hugging Face (Transformers/Datasets)
- **Tools/Architecture:** Sentry, Git, Jira, Linux, Figma, System Design, distributed services, performance & reliability

Experience

- **Research Assistant (SMILE Lab)** | *University of Florida, Gainesville, FL* Dec 2024 - Present
  - Productionized **GRACE** and **DOMINO**, state-of-the-art whole head segmentation services with Flask APIs and a Next.js UI and cut e2e processing time by 35% via **search latency reduction.**
  - Automated containerized **segmentation workflows** (**Docker** + **shell scripting**), including training/testing pipelines for multiple 3D segmentation models and command-line tools for reproducible inference.
  - Recreated and validated published results by implementing a **General Linear model (GLM) based single-trial** beta estimation pipeline, feeding outputs into a **Multivariate Pattern Analysis (MVPA)** stage using linear SVMs to classify neural responses with decoding accuracy of 54% at $p < 0.001$.
  - Formulated a **text-to-image** diffusion pipeline on top of HuggingFace Diffusers, including SLERP-based latent interpolation, image-preprocessing utilities, and a fully assembled **UnCLIP pipeline (prior → decoder → super-res)**; improved generation stability and batch throughput by 25%.
  - Trained and evaluated multiple deep learning architectures (**ResNet**, **AlexNet**, **Xception**, **Inception**) for an Explainable AI project, integrated Grad-CAM & SHAP to raise clinician-rated interpretability by 25%.
  - Engineered a cross-cohort AD-prediction and fairness-audit pipeline across **OASIS/ADNI/NACC** datasets, with automated logging/monitoring and Bayesian Hyperparameter Optimization. (+12% AUC improvement)
- **Software Developer** | *Indian Institute of Technology Bombay, Mumbai, India* Dec 2021 - May 2022
  - Designed a comprehensive **feature-rich Android & iOS application** using **Flutter**. The app enhances the learning experience & teaching processes across **three languages**, encompassing a vast **vocabulary of over 50,000+ words**.
  - Structured a **MySQL-backed** inverted index with **Python ETL**; reduced **search p95 latency by 30%** via schema/index optimizations and an audio-visual asset pipeline crafted with Flask, containerized via Docker and deployed on GCP.
  - **Extracted & normalized** lexical semantics on words (as an entity) via lightweight ontology, across 4 different **multi-lingual corpora** and augmented **provenance links** to enable drill-down from aggregated insights to granular source entries.
  - Prototyped predictive text/learning insights **(Python/SQL)**, increasing lesson completion/understanding by 40% on all three languages.
- **Software Developer** | *Bharat Tyres Pvt. Ltd, Anand, Gujarat, India* Sep 2020 - Sep 2021
  - Architected **microservices** using Next.js on AWS (EC2, ALB, RDS with PostgreSQL); introduced Redis caching and query tuning to cut API p95 latency by 40% and increase throughput RPS by 20%.
  - Implemented a robust **authentication and authorization** mechanisms using **JWT and OAuth 2.0**, enhancing API security, preventing unauthorized access, and ensuring seamless user management across microservices.
  - Spearheaded the **CI/CD pipeline** implementation with **Docker & Kubernetes**, automating workflows & ensuring seamless **zero-downtime updates**, which improved deployment efficiency & **reduced downtime by 30%.**

Projects

- **Cache Up** | *MCP, Python, FastAPI, Next, Postgres*
  - Built **Cache-Up**, a platform delivering concise tech news summaries using **Model Context Protocol (MCP)** to integrate with **Pinecone** for vectorized tag search and indexed 100+ posts/day;
  - Constructed frontend with **Next.js** and **Tailwind CSS**, and the backend in **Python (FastAPI)** that handles **100+ requests per second**, released via **Vercel** and hosted on **DigitalOcean** with **PostgreSQL**.
  - Orchestrated content ingestion using a local **Raspberry Pi** to fetch latest posts every 5 minutes; tuned **Sentry** for real-time monitoring, achieving **99.9% uptime** and reducing debugging time by **45%**.