

PIUSH PAUL

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EDUCATION

University of Southern California

Master of Science in Computer Science

Aug 2026 – Present

Los Angeles, CA, USA

- **Coursework:** Analysis of Algorithms, Database Management

Thadomal Shahani Engineering College, University of Mumbai

Bachelor of Engineering in Computer Engineering (CGPA: 9.45 / 10.0)

Dec 2020 - May 2024

Mumbai, India

- **Coursework:** Operating System, Computer Networks, Database Management, Mobile Computing, Quantitative Analysis, Machine Learning, Big Data Analysis, Distributed Computing, Project Management, Applied Data Science, Artificial Intelligence, Natural Language Processing
- **Academic Excellence:** Achieved University Topper recognition in Semester 8, and organized the TSEC Mashup programming contest.

EXPERIENCE

Deutsche Bank

Software Engineer (Analyst)

Jul 2024 – Aug 2026

Pune, India

- Engineered C# .NET high touch option trading platform and microservices, resolving **20+ complex financial calculation anomalies** with QA and Business Analysts.
- Rectified critical state-management defects to ensure **deterministic behavior** and **data consistency** during trade pricing, RFQ processing, and product booking.
- Orchestrated **CI/CD deployment pipelines** across 12+ repositories for **6 microservices** utilizing Ansible and ArgoCD.
- Build a small python script for QA to automate version upgrade of internal libraries; bringing down time from **5 hours manually to 2-3 minutes**
- Worked as a **C++ developer**, developing and maintaining **low-latency infrastructure** for market connectivity for components like SDS (Static Data Service) and QES (Quantum Execution Service).
- Contributed to **integration with global exchanges** such as **Eurex** and **NSE**, optimizing protocols and market data flow.
- Used **BOOST** and **PyTest/GTest** frameworks to design and maintain unit and integration test suites for core trading systems.
- Contributed to **MiFID II post-trade transparency reporting pipelines** by validating trade and order messages and ensuring regulatory compliance through internal tools.
- Collaborated closely with cross-functional teams including DevOps, QA, and business analysts to ensure stability and compliance across releases.

Staywise

Software Engineering Intern

Feb 2023 – May 2023

Mumbai, India

- Identified the business need for cheaper compute and designed an independent system from scratch. Built a product that will help students find roommates and living accommodations in their desired area.
- Created app using **Flutter** and **Firestore** based on **MVVM** architecture using **Riverpod**. Built and deployed a fully functional product within a **span of 90 days**.

PROJECTS

ZenithEngine | C++, CMake, DPDK

Jul 2026 - Present

- Architecting a **low-latency cryptocurrency HFT engine** featuring a **zero-allocation** market data feed handler, L2 order book, and execution engine
- Optimized critical path latency and inter-thread communication by implementing bounded **lock-free MPSC ring buffers**, **core pinning** (thread affinity), **cacheline alignment**, and **branch prediction**
- Engineered a custom WebSocket networking layer utilizing **DPDK** for **kernel bypassing**, moving packet processing to userspace to target sub-microsecond latency.

KrishiBodha | Agentic AI, Google ADK, Gemini, Gemma, Dart, Python

Jul 2025

- Engineered a mobile application utilizing **on-device Gemma models** to provide **offline**, edge-computed **multilingual Q&A** and **voice-based navigation** for low-connectivity environments
- Integrated **Gemini** on **Vertex AI** to construct a multimodal pipeline capable of image-based **crop disease identification** and real-time, localized market price analysis, and government scheme information
- Processed **Sentinel-2 satellite telemetry** via Python pipelines for actionable geospatial insights and **crop yield predictions** using 6 different indices

Forecasting Blossoming Patterns in Forest Ecosystems | Google Earth Engine, Python, TensorFlow

- Integrated and preprocessed a **4-year, multi-source dataset** of satellite imagery and climate data (Sentinel-2, MODIS, NASA SRTM), applying temporal interpolation to correct for cloud cover and dimensionality reduction for performance.
- Trained a **CNN-LSTM spatiotemporal model** to forecast vegetation changes and developed a custom algorithm to classify blooming stages.
- Implemented **K-Means clustering** to identify optimal beehive “hotspots” based on key environmental factors, delivering weekly, visualized recommendations with high predictive accuracy (**Mean Squared Error: 0.0069**).

HelpAlert | Next.js, Firebase, Flutter, Figma

Sep 2022

- Built a disaster management app and identified the need to have a mobile interface for users along with a **Next.js** web app for authorities, building a UI prototype using **Figma**.
- Used **server-side rendering** to dynamically generate web pages, **Firebase Authentication** for authentication, **Firebase Cloud Storage** and **Firestore** for storing data, and **SCSS** for an aesthetically pleasing UI. Used the **Google Maps API** to display safe zones.

Vendo | *Next.js, Flutter, Figma, Bootstrap*

Aug 2022

- Familiarized myself with the intricacies of problems faced by street vendors, and developed an overall website template using **Figma**.
- Built a **Flutter** app for vendors and a website for government officials, contributing mainly to the website using **Next.js**, for government officials to monitor vending zones, manage weekly bazaars, and track vendor locations.
- Implemented **server-side rendering** and dynamically generated pages for better performance, retrieving data from the backend and bridging with **Axios**.

PUBLICATIONS

Advanced Deep Learning Techniques for Early Detection of Oral Cancer: A Multimodal Approach

2025

- Piush Paul, Umang Singh, Sarah Khan, Atharva Jog, Ujwala Bharambe — Second International Symposium on Artificial Intelligence (ISAI), 2025.
- Developed and optimized deep learning models using advanced data processing techniques on the Oral Cancer Image dataset, enabling robust performance comparison across **CNN**, **EfficientNetB2**, and **Vision Transformer** architectures through rigorous metric evaluation.
- **EfficientNetB2** achieved state-of-the-art oral cancer classification performance with **96.12% precision** and **94.38% accuracy**, outperforming baseline CNN (76.61%) and ViT (83.69%), demonstrating strong potential for AI-assisted early diagnosis in clinical settings.

ACHIEVEMENTS

- **1st Runner up at Google Agentic AI Hackathon 2025:** A national level hackathon organized by **Google**, holding the **Guinness World Record** for most participants in an agentic AI hackathon.
- **Winner of Smart India Hackathon 2022:** A national level hackathon organized by the **Government of India**.
- **ICPC Regionalist:** Secured **82nd rank** in the ICPC regional round Mathura-Kanpur.
- **Won the Codessiance Hackathon 2022-23**, with a footfall of 200+ participants.
- **1st Place** in coding competition in **TSEC Codecell Weekly challenges**.
- Secured a place among the **top 10 teams** for TSEC Hacks 2020-2021, with a footfall of 250+ participants.
- **Competitive Programming:** Solved more than **350 problems** and achieved **Specialist** rating (max 1423) on Codeforces.
- **TSEC Hall of fame:** Inducted in recognition of all-round excellence and leadership throughout the four-year undergraduate program.

TECHNICAL SKILLS

Programming Languages: C++ , **Java**, Python, C, C#, Dart, Bash, Rust, Javascript, Typescript, HTML
Frameworks: CMake, Boost, React, NextJS, NodeJS, Pytest, Flutter, LangChain, Numpy, Pandas, Pytorch
Tools and Platforms: Git, GitHub, Bitbucket, Linux, Teamcity, ArgoCD, Ansible, Vertex AI, GCP, Docker, Firebase
Other Skills: Agile Methodology, Project Management, Product Management, Leadership

LEADERSHIP & EXTRACURRICULARS

Organizer, TSEC Mashup

June 2023

- Identified the lack of guidance about coding interviews as a key problem faced by job and internship seekers.
- Organized weekly competitive programming contests to help juniors enhance their algorithmic problem-solving skills.

Volunteer, NSS TSEC

June 2021 – June 2022

- Helped organize events including a blood donation drive and CPR workshops.