Partha Sai Guttikonda

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Education

University of Texas at Arlington	**05/2024**
Master of Science, Computer Engineering; GPA: 3.9 / 4	Texas, United States
Sreenidhi Institute of Science and Technology	**06/2022**
Bachelor of Technology, Computer Science; GPA: 7.72 / 10	Hyderabad, India

Skills

- **Programming Languages**: C, Python, JavaScript, Typescript, Java, Swift, HTML, CSS, SQL
- **Front-End**: Nextjs, Reactjs, SwiftUI, ARKit, RealityKit, Reality Composer Pro, Material UI, Tailwind, Unity, Open-XR
- **Back-End**: Flask, Spring Boot, REST API, GraphQL, PostgreSQL, MongoDB, SQL, Oracle, Elastic Search
- **DevOps**: Docker, Jenkins, Circle CI, GitLab pipelines, EC2, S3 storage, Git, Linux, on-premise NVIDIA DGX A100
- **Machine Learning**: PyTorch, TensorFlow, OpenCV

Certifications & Awards

- Invited to **Apple's Envision the Future: Build Great Apps for visionOS** to explore advanced app development tools
- Problem Solving through C: **NPTEL (top 1% in the country)**, Secured Chartwell Scholarship for 3 consecutive semesters
- Recognized by Indra Nooyi for outstanding contributions to **SpatialVisVR**, integrating AI into medical imaging
- Attended **Apple VisionOS** Developer Meet to explore augmented reality and multimodal application development
- Presented PathVisVR at **CES 2025**, showcasing its innovative application in digital pathology and medical imaging

Work Experience

Southwest Airlines	**06/2024 – Present**
Software Engineer	Texas, United States

- Developed a voucher reporting app for Group Operations using **React, AWS Lambda, S3, and Postgres**. Enabled **70+ airport users** to efficiently report and validate vouchers, with the system communicating through Kafka topics for seamless validation
- Built an **S3 and AWS Lambda pipeline**, cutting voucher processing time by **40%** and enabling real-time data access
- Developed a dynamic logging framework using a **singleton pattern and interface-based dependency injection**, enabling team-specific logging/reporting integrations via Nexus with minimal code changes

Health Data Science Lab	**06/2023 – 06/2024**
Software Engineering	Texas, United States

- Successfully demonstrated adversarial attacks on **Vision Language Models (VLMs) like PLIP (Stanford Group), BioMedClip (Microsoft Reserach)** for pathology imaging, **achieving a 100% success rate** in misclassifying state-of-the-art models
- Developed Digital Pathology Viewer on **Apple Vision Pro to visualize Whole Slide Images(WSI)** integrated with Deep Learning Pathology Search Engine for Similar Patient Search by **utilizing Core ML** models to perform image segmentation on device
- Built **SpatialVisVR** using Unity with OpenXR for interactive immuno-oncology diagnostics and deep learning pathology analysis
- Worked on cell segmentation and cell trajectory analysis of mIF images using CellPose, **running large-scale computations on DGX Nvidia A100** to efficiently process and analyze complex cellular structures

Vantashala	**04/2022 – 08/2022**
Full Stack Developer	Hyderabad, India

- Merged geological and test queries with **MongoDB aggregation**, reducing server calls and enhancing search efficiency
- Designed and maintained **40+ reusable** React components,and reviewed/merged **70+ pull requests**,enhancing integration, code longevity,and development efficiency
- Integrated **ELK stack** and optimized micro-service communication using Apache Camel, improving log monitoring, debugging, and message processing **efficiency by 30%**

Virtusa	**12/2021 – 03/2022**
Software Engineering Intern	Chennai, India

- Implemented secure access control and login systems using **Spring Boot, Keycloak, JWT, and OAuth** for enhanced authentication
- Enhanced website performance by reducing load time **from 10s to 3s with PWA caching** and improved backend **reliability by 25%** through comprehensive Spring Boot unit testing

Personal Projects

- **Automated H&E data Detection Application,** *ML-Core*
  - Trained **ResNet-50** to detect Whole Slide Images from photos, achieving precise extraction of H&E images
  - Integrated **CoreML** into an IOS app, improving inference time from **3.0 seconds to 0.7 seconds**
- **Pre-trained LLaMA-2 Model on Medical Reports,** *ML-Core*
  - Fine-tuned **LLaMA-2** on structured and unstructured medical reports for clinical data extraction and summarization.
  - Optimized tokenizer pipelines and applied model quantization for improved performance.

Publications

- **Spatialvisvr,** *Multiplexed medical image viewer with contextual similar-patient search (IEEE CIBCB)* *(arxiv.org/abs/2401.02882)*
- **Adversarial attacks,** *Demonstration of an adversarial attack against a VLM model for pathology image (IEEE ISBI)* *(2401.02565)*
- **Diagnostic integrity meets efficiency,** *Architecture for physiological signal compression (IEEE BSN)* *(arxiv.org/abs/2312.12587)*