Kshitij Parashar

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Education

Technische Universität Darmstadt **April 2026 – Present**
- Master of Science in Computer Science (Specialization in Data Science and Engineering)

Nanyang Technological University, Singapore **Aug 2020 – May 2024**
- Bachelor of Engineering in Computer Science (Specialization in Artificial Intelligence and Cybersecurity)

Experience

Panasonic Industry | Research & Development Engineer **Sep 2024 – Sep 2025**
- Modified and trained U-Net model for reference signal generation in e-nose sensor system for odor detection, reducing data requirements by 50% while remaining robust to environmental variations.
- Built a pressure sensor shape classification pipeline with preprocessing (resampling, filtering, ROI extraction), and trained a MobileNetV2 model using TensorFlow, improving cross-sensor accuracy by 23% using transfer learning techniques.
- Analyzed spatial, temporal and environmental variability in sensor data and proposed object separability techniques using thresholding, quantization, and mean-shift clustering.
- Developed and deployed app on edge device for real-time monitoring of multi-modal factory data, enabling early defect identification, and reducing QA/QC inspection time by 30%.
- Optimized image processing for edge deployment using multi-core processing, achieving 60% efficiency in memory usage.

STMicroelectronics | Data Science & Analytics Intern **May 2023 – Aug 2023**
- Collaboratively designed MLOps platform architecture with 6 data scientists and engineers, and developed platform backend using unittest, scikit-learn, FastAPI, with detailed documentation in 7 weeks.
- Deployed and tested models on the Dataiku platform to classify wire bond integrity in semiconductor chips.
- Conducted a 3-day workshop in Java for over 20 staff members from various sites, accelerating technology adoption.

Projects

Robust Voice Activity Detection | *PyTorch, LSTMs, ONNX, hyperparameter tuning, audio processing*
- Reviewed literature and implemented a voice activity detection models using PyTorch; trained and evaluated them on standard speech datasets using NSCC Aspire2A GPU clusters
- Surveyed SOTA models and experimented with various architectural modifications, aiming to enhance performance through iterative testing and analysis on various domains of speech data.
- Optimised model output time for generating real-time output using Open Neural Network Exchange (ONNX).

Analysis of Deep Image Colorization Techniques | *PyTorch, CNN encoder-decoder, loss functions*
- Evaluated and conceptualized various Deep Learning Image Colorization models and architectures using PyTorch.
- Trained new image colorization models using Convolutional Neural Network (CNN) encoder-decoder architectures.
- Enhanced existing deep learning models using novel loss functions and metrics like LPIPS, SSIM, Multi-Scale SSIM.

ResumeLens | *React, Tailwind CSS, Puter.js, Zustand, GitHub, Firebase*
- Developed an AI-powered resume feedback application with React, implementing serverless cloud-based user authentication and secure file handling via Puter.js, and managing state efficiently with Zustand.
- Built responsive, modular UI using Tailwind CSS; utilized GitHub for version control and deployed on Firebase.

Temasek Labs–ASR project | *Python, BeautifulSoup, XML processing, NLP*
- Built a processing pipeline for code-switched ASR, handling acronym normalization, disfluency removal, and Chinese character segmentation to improve sentence detection accuracy.

Skills

Languages: Python, Java, C/C++, SQL, JavaScript, TypeScript
Cloud: Azure, AWS, GCP, Firebase, Digital Ocean
Databases: NoSQL (*MongoDB, CosmosDB, DynamoDB*), SQL (*Postgres, MySQL, Supabase*)
Developer Tools: Git, VS Code, Eclipse, Docker
Frameworks & Libraries: FastAPI, Streamlit, PyTorch, Tensorflow, scikit-learn, CUDA

Leadership / Co-Curricular Activities

AI Student Developer Conference 2023 | Program Director
- Planned and organized the inaugural AI Student Developer Conference with 300+ attendees, coordinating participation from leading companies like AWS, NVIDIA, GovTech, and Grab for industry insights.
- Developed an admin portal in 6 weeks using Next.js, Firebase Functions, and Firestore for seamless event management.