

Shirshajit Sen Gupta

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[LinkedIn](#) — [Portfolio](#) — [GitHub](#)

EDUCATION

Bachelor of Computing, Computer Science | National University of Singapore

Aug 2021 – June 2025

2nd Major in Mathematics, Minor in German

Teaching Assistant for Artificial Intelligence (IT5005) and Analytics in Managerial Economics (DBA5101)

Courses:

Algorithms (Java), Computer Vision (Python), Big Data for Databases (Spark, Hadoop), Software Product Engineering for Digital Markets (Next.js, Django, AWS), Advanced Natural Language Processing (Graduate), Sound and Music Computing

SKILLS

Proficient: Python, PyTorch, Scikit-learn, HuggingFace, React, Django, Flutter, Firebase, PostgreSQL, Git, NLP, Reinforcement Learning, Graph Neural Networks, PyTorch-Geometric, Transformers

Familiar: TensorFlow, C++, TypeScript, OpenCV, MongoDB, Docker, Figma, Agile Methodologies, AWS, JavaScript

EXPERIENCE

AI Researcher | Social AI Studio, Singapore University of Design and Technology

Aug 2025 – Present

Conducting research on outstanding fact extraction from knowledge graphs using graph augmented retrieval and on fairness and bias mitigation in large language models in hiring contexts.

Data Science Intern | Procter & Gamble

May 2023 – Dec 2023

Reduced plan costs by **2%** and streamlined media workflows by **60%** by designing a **non-linear optimization** strategy and building an **LLM-powered execution** chatbot using OpenAI, LangChain, and Chainlit, with structured prompt templates for multi-scenario plan generation.

Junior Deep Learning Researcher | Gaze

Feb 2020 – Jan 2021

Improved spoof detection robustness by **30%** through adversarial training and Bi-FPNs for GazePass, optimized embedded inference via neural distillation, and led the development of an **OCR pipeline** for Bangladesh's National ID recognition under resource-constrained deployment conditions.

PROJECTS

Multi-Agent Resume Screener

Oct 2025

Won the **Airia AI Agent Hackathon** with a multi-agent pipeline automating resume screening by combining LLM reasoning with RAG, evaluating candidates with CEO, CTO, and HR personnel agents for a comprehensive hiring system.

Crypto-Based Credit Scoring (fIDent)

June 2025

Built a **cross-border financial identity platform** on the XRP Ledger combining on-chain transactions, employment history, and credit data to generate holistic scores. Won the **Social Impact Prize** at the **EasyA x Ripple Apex Hackathon**.

Real-Time Streaming Piano Transcription System

Dec 2024

Achieved **<320ms end-to-end latency** on consumer hardware by building a low-overhead audio transcription system using a **4×-downsampled ZipFormer** encoder, with real-time pitch-to-note inference via Librosa and TorchAudio.

3D Segmentation Task Manager (OmniCAT) | National Dental Centre Singapore

Dec 2024

Enabled **10× throughput** in volumetric segmentation by building a full-stack annotation workflow with **Django, React, TypeScript, and AWS**, and integrated a 3D U-Net model using PyTorch3D to optimize mesh labeling and reduce processing latency.

LLM Detector (FastDetectGPT++)

Apr 2024

Achieved a **1% improvement** over SOTA in **detecting LLM-generated text** by extending FastDetectGPT with entropy-aware discriminators and statistical token variance features, tested across models like GPT-2, Pythia-1.4, and MPT-1.3B.

PUBLICATIONS

MHASAN: Multi-Head Angular Self Attention Network for Spoof Detection | International Conference on Pattern Recognition (ICPR), 2022

Proposed a novel spoof detection model *using multi-head angular self-attention*, improving resistance to presentation attacks on facial recognition systems

Bi-FPNFAS: Bi-Directional Feature Pyramid Network for Pixel-Wise Face Anti-Spoofing by Leveraging Fourier Spectra | Sensors, 2021

Enhanced pixel-wise spoof detection *using* a Bi-Directional Feature Pyramid Network (**Bi-FPN**) and **Fourier** spectral inputs, improving cross-illumination generalization

A-DeepPixBis: Attentional Angular Margin for Face Anti-Spoofing | Digital Image Computing: Techniques and Applications (DICTA), 2020

Introduced an **attentional angular margin loss** function into face anti-spoofing pipelines, boosting accuracy on cross-domain datasets with limited training samples