

Aditya Kumar

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EDUCATION

Singapore University of Technology and Design

- Bachelor of Science (Design and Artificial Intelligence), **Honors with Distinction**
- **GPA 4.03/5.0**
- **Date of graduate** - May 2025

Relevant Courses:

Algorithms, Applied Deep Learning, Machine Learning, AI Applications in Design, HCI (Human-Computer Interaction), Natural Language Processing (NLP), Product Design Studio, Service Design Studio, Systems Design Studio, Spatial Design Studio

WORK EXPERIENCE

Singapore University of Technology and Design

Undergraduate Researcher (UROP)

May - Present (2024)

- **Developing Model-Agnostic Meta-Learning (MAML) algorithms** to enhance fast adaptation in reinforcement learning, specifically in online education systems (MOOCs).
- **Developing personalized meta-RL models** that cater to diverse user profiles, optimizing learning outcomes based on varying skill levels and subject exposure.
- **Utilizing LLMs to transform verbal learning feedback into numerical vectors**, boosting reinforcement learning convergence and adaptability.

CPF Board, Singapore

AI/Full Stack Intern

Sep - Dec (2023)

- **Designed user-centric interfaces** using React, Vite.js, and Material UI, increasing officer workflow efficiency.
- **Engineered back-end solutions** with FastAPI and Azure OpenAI to streamline user inquiry responses.
- **Established error checkpoints**, allowing correspondents to review and refine AI-generated responses, boosting trust and autonomy.

ACADEMIC PROJECTS

Spatial Design Project (Ongoing)

Urban Redevelopment Authority

Sep - Present (2024)

- Working with URA to develop an AI-driven platform that redefines public engagement in urban planning by converting community feedback into actionable design insights.
- Using **Stable Diffusion v2** or **Flux 1.1** for inpainting, **Meta's Segment Anything Model (SAM)** for image segmentation, and employing **clustering techniques** and **majority voting** to integrate various user inputs from text and images.

Skin Lesion Classification System

Singapore University of Technology and Design

Jan - Apr (2024)

- Built a classification system leveraging **Capsule Neural Networks** and a custom fusion model for skin cancer detection.
- Integrated **Grad-CAM to provide visual explanations**, increasing interpretability and trust in the model's predictions.
- Performed **comparative analysis** with **CNNs and Vision Transformers**, achieving superior classification accuracy

P&G Dashboard Project

Jun - Aug (2023)

Singapore University of Technology and Design

- Partnered with P&G (university partner) in building a dashboard that allows researchers of the company to visualize data in different formats such as charts and timelines to make better decisions.
- **Developed the backend with Ruby on Rails**, managing APIs and database interactions for real-time data updates.
- Integrated **Google Cloud services to handle large datasets efficiently**, ensuring secure and scalable data storage.
- Used Google's **Vertex AI** to build predictive models to allow for real-time data analysis on the dashboard for research purposes.

'Moodify', (a Music Recommender System)

Jan - Apr (2024)

Singapore University of Technology and Design

- **Led the development** of 'Moodify,' a web-based **AI tool for recommending music based on emotional and genre** attributes with **Python, Streamlit, and Pytorch**.
- **Developed a 1D Convolutional Neural Network (Conv1D) with an Attention mechanism** to predict valence and arousal from audio features, improving the accuracy of emotional tagging for personalized music recommendations.
- **Designed a User Interface** for audio uploads and mood visualizations for the users.

HACKATHONS

First Prize Winner – International Building Design Competition 2024

Team Bonobodohs

- Proposed an innovative idea for Campus D.E.L.T.A, a sustainable and tech-integrated educational campus designed to enhance interdisciplinary learning and community engagement.
- Integrated Life Cycle Assessment (LCA), site analysis, AI-driven solutions, and renewable energy systems to optimize the construction process and implementation.

LaunchSomething Hackathon 2023

Singapore University of Technology and Design

- Pitched an AI-powered interior design solution as part of Team Alsthetic.
- Won the **\$1,000 Stephen Riady Innovation Grant** to support further development.

Backend Developer – Clause Genie

Temasek x SUTD Gen AI Hackathon 2023

- Designed and developed the backend of a Generative AI-powered tool, Clause Genie, to automate the review and interpretation of legal contracts for the procurement team.
- Using OpenAI's GPT, PyPDF2, Docx, and TF-IDF vectorization, the application highlighted key clauses, while the chatbot allowed users to interact with and simplify legal jargon.

COURSE CERTIFICATIONS

- Natural Language Processing Specialization – **DeepLearning.AI (Sep 2024)**
- JavaScript Basics – **University of California, Davis (Jul 2024)**
- Deep Neural Networks with PyTorch – **IBM (Jun 2024)**
- Generative AI Language Modelling with Transformers – **IBM (May 2024)**
- LangChain: Application Development Essentials – **Coursera Instructor Network (May 2024)**

TECHNICAL SKILLS

- **Languages & Frameworks:** Python, JavaScript, Java, Ruby, HTML, CSS, TensorFlow, PyTorch, FastAPI, React, Ruby on Rails, Streamlit, Gradio, Vite.js, Django, Flask
- **Cloud & Other Technologies:** Azure OpenAI, Google Cloud Services, LangChain

SOFT SKILLS

- Hardworking, Collaborative, Strong communication skills, Problem-solving, Adaptability