**Aditya Kumar**

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Portfolio: [https://github.com/adikuma](https://github.com/MarcusLee012)

**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**

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| **Singapore University of Technology and Design** | **May - Present (2024)** |
| **Undergraduate Researcher (UROP)** |  |
| * **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. |  |

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| **CPF Board, Singapore** | **Sep – Dec (2023)** |
| **AI/Full Stack Intern** |  |
| * **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**

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| **Spatial Design Project (Ongoing)** | **Sep – Present (2024)** |
| **Urban Redevelopment Authority** |  |
| * 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. |  |

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| **Skin Lesion Classification System** | **Jan – Apr (2024)** |
| **Singapore University of Technology and Design** |  |
| * 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 |  |

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| **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. |  |

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| **'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 AIsthetic.
* 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