SAKSHEE PATIL

saksheepatil05@gmail.com | (+1) 9194538678 | Github | LinkedIn | Portfolio

EDUCATION

Duke University *Aug 2024 - Present*
Master's in Artificial Intelligence
Courses: Sourcing Data For Analytics, Modeling Processes and Algorithms, Business Fundamentals, Explainable AI

Indian Institute of Technology (IIT), Indore *May 2018 - May 2022*
Bachelor in Technology, Mechanical Engineering | Minor in Humanities and Social Sciences
Courses: Calculus, Linear Algebra and ODE's, Numerical Methods, Computer Programming CGPA: 8.65/10

SKILLS AND INTERESTS

Python, Tensorflow, Numpy, Pandas, Scikit - Learn, Streamlit || Applied GenAI, LLM Agents, Computer Vision, R&D

PROFESSIONAL EXPERIENCE

Deloitte, USI | *Awards* | *Article*
Analyst - R&D | GenAI Tech *Aug 2022 - Aug 2024*

- Developed a multi-agent LLM system utilizing OpenAI's Assistants API, enabling autonomous web research, analysis, and generation of deliverables such as newsletters, reports and PowerPoint presentations. Presented the solution to the leadership during the quarterly All-Hands meet.
- Built a prototype (streamlit + GenAI) for creating comprehensive, customizable and locally downloadable PowerPoint presentations simply based on document uploads, tailored to specific topics and target audiences. The solution was estimated to save 30% of consultant time in creating first drafts.
- Built a scalable topic modeling approach for advanced document analysis; adopted by 10+ teams internally.
- Conducted applied research work in LLM Agents and frameworks, including AutoGen, CrewAI, and LangGraph, and concepts like Retrieval-Augmented Generation (RAG), knowledge graphs, & prompting techniques.

National University of Singapore | *Advisor: Guillaume Sartoretti* | | *Article*
Summer Research Intern *Apr 2021 - Aug 2021*

- Worked on autonomous indoor robotic path planning under unknown, partially interactive environments.
- Created a custom OpenAI gym env with a pygame renderer capable of being simulated in Pybullet.
- Reviewed and trained a state-of-the-art 3D Object Detection algorithm (ImVoteNet) on SUN-RGBD Dataset.

Tynker, India (EduTech)
Coding Tutor, Part-time *Oct 2020 - Nov 2021*

- Conducted live personalized virtual mentoring sessions for students of India and overseas.
- Taught Python, HTML, CSS, and block coding along with creation of quarterly progress reports for all mentees.

PROJECTS

Unsupervised Segmentation of Peck-damaged Rice Grains | *Journal Paper* | *Jan 2022 - Jun 2022*

- Earned highest grade for conducting research in a field with limited existing literature, utilizing a novel dataset.
- Developed an unsupervised Convolutional Neural Network (CNN) for segmenting peck damage in rice grains, achieving a 92.54 Dice coefficient accuracy on the validation dataset.
- Further sub-classified the masks using K-means clustering, based on metrics such as damage scatter, area, and centroid positioning, potentially uncovering the underlying causes of peck damage across different classes.

Design and Vision-based Control of Miniature Rolling Capsule | *Book Chapters* | *Apr 2021 - Jan 2022*

- Designed & 3D printed a CAD model of a miniature rolling capsule fitted with a CCD camera for pipe inspection.
- Developed a modified U-net architecture for detecting the type, spread, and severity of defects on steel surfaces, achieving an accuracy 2% higher than the baseline results on the dataset.

ACADEMIC ACHIEVEMENTS

- **Silver Medalist**, Inter-IIT Technical Meet, 2021: Led a 10-member team as part of the AI-ML Club.
- **Finalist**, Smart India Hackathon 2020: Participated in a nationwide 36-hour product development competition.
- **Nominee**, Best B.Tech Project Award: Recognized for outstanding project work.
- **Recipient**, Summer Research Fellowship, Indian Academy of Sciences, 2020