# SAKSHEE PATIL

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## EDUCATION

**Duke University** *2024 - Present*
Master's in Artificial Intelligence for Product Innovation

**Indian Institute of Technology, Indore** *2018 - 2022*
Bachelor in Technology, Mechanical Engineering | Minor in Humanities and Social Sciences CGPA: 8.65/10

## WORK EXPERIENCE

**Deloitte, USI** | *Awards* | *Article*
*Analyst - R&D | GenAI Tech* *August 2022 - August 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.
- Built a proof of concept (streamlit) for creating comprehensive, customizable and locally downloadable PowerPoint presentations based on document uploads, tailored to specific topics and target audiences.
- Implemented a scalable Generative AI-based Topic Modeling approach for advanced document analysis.
- Research work: Large Language Model (LLM) Agents and frameworks, including AutoGen, CrewAI, and LangGraph, as well as Retrieval-Augmented Generation (RAG), knowledge graphs, and prompting techniques.

**National University of Singapore** | *Guide: 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.
- Mentoring entailed teaching programming languages like 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*

- Guide: Dr. Pavan Kankar, Dr. Ankur Miglani | *B.Tech Thesis*
- Earned highest grade for conducting research in a field with limited existing literature, utilizing a novel dataset.
- Developed an unsupervised Convolutional Neural Network (CNN) based segmentation algorithm for the sub-classification of pecky-damaged rice grains, achieving a 92.54 Dice coefficient accuracy.

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

- Guide: Dr. Debanik Roy, Dr. Pavan Kankar, Dr. Ankur Miglani
- 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

## COURSES COMPLETED

- Calculus, Linear Algebra and ODE's, Numerical Methods, Computer Programming
- Applied Data Science using Python | *Coursera* See Credential
- Neural Networks and Deep Learning | *Coursera* See Credential