

Aviral Jain

Final Year Undergraduate Student at Indian Institute of Technology, Kharagpur

Artificial Intelligence and Machine Learning (M.Tech) + Agricultural and Food Engineering (B.Tech)

Micro-Specialisation in Entrepreneurship & Innovation

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EDUCATION

Year	Degree/Exam	Institute/School	CGPA/Marks
2023	B.Tech + M.Tech Dual Degree	Indian Institute of Technology, Kharagpur	8.90/10
2018	All India Senior School Certificate Examination	Sir Padampat Singhanian School, Kota	90.0%
2016	All India Secondary School Examination	Sir Padampat Singhanian School, Kota	10/10

INTERNSHIPS

Software Development Intern | Track and Trace, Honeywell

May '22 - Jun '22

- Worked in an agile production environment with **100+** UX design iterations for a building a redesigned Track & Trace for Manufacturers portal
- Integrated a Dashboard and Serialization Engine with the Track & Trace for Manufacturers portal using **React.JS** for frontend development
- Embedded a dynamic world map to the Dashboard using **GoogleMaps API**, showing real time inventory data relevant to manufacturer
- Built docker container clusters on **AWS**, utilized **Kubernetes** and **Docker** for the runtime environment of the CI/CD deployment pipeline

Flight Search Caching | Data Science Research Intern | ixigo

Feb '22 - Apr '22

- Researched methods like **MCMC**, **Survival Analysis** to generate predictions for pre-emptive caching of flight search and price change data
- Processed search data in accordance with survival data, **engineered features** with journey sector, time of search for multivariate modeling
- Trained and benchmarked several **Survival models**, and achieved a **95%ile** prediction accuracy within a **3-minute absolute error** window

Address Standardization | Data Science Intern | OneCard, FPL Technologies

Feb '22 - Mar '22

- Implemented an in-house **address standardization API**, which parses rough addresses and restructures them into a standardized format
- Extracted primary components of addresses using **rule-based string matching**, exposed the feature as HTTP endpoint using **REST APIs**
- Minimized the probability of fraud and saved mailing expenses by **~15%**, by correcting **1,00,000+** addresses for credit card shipments

PROJECTS

Explainable Weather forecast using Deep Spatial Autoencoders | Masters Thesis Project ([link](#))

Jul '22 - Present

- Implemented a Data Driven Weather Prediction model, used a Data Assimilation algorithm (**DDWP + DA framework**) to ingest noisy data
- Implemented a **multi-time step method** and built a spatial transformer-based **U-NET** to capture features of spatio-temporal weather data

Wheat Head Identification for Yield Monitoring | Bachelors Thesis Project ([link](#))

Sep '21 - Dec '21

- Performed **Exploratory Data Analysis** over our 8,500+ images large data pool sourced from three publicly available wheat head datasets
- Implemented image detection models (**Faster-RCNN**, **EfficientDet**, **YOLO**) and benchmarked over several metric functions like **F1**, **Dice**, **mae**

Multi Agent Pathfinding Problem and its applications in Agriculture | AI Course Project ([link](#))

Sep '21 - Nov '21

- Modeled the **multi agent path finding problem** for managing aerial and ground (obstacle-constrained) swarms for precision agriculture
- Implemented a bi-level **Conflict Based Search** algorithm which performs constraint search on each agent as well as the whole conflict tree

Breast Histopathology Image Segmentation using Adversarial Methods | Machine Vision Lab, IIT Roorkee ([link](#))

Dec '20 - Feb '21

- Built several classification models for benign and malignant Breast Ultrasound images using SOTA architectures like **VGG_16**, **ResNet50**
- Devised pre-processing methods like **binary thresholding**, and compared several autoencoder architectures like U-Net, deeplab, Res-UNET++
- Achieved excellent performance over several metrics like Dice (**88%**), Jaccard Index (**93%**), Specificity (**93.8%**) and Hausdorff dist. (**5.57**)

COMPETITIONS

Run with the Giants | SP Jain Institute of Management | National Finalist

Jun '21 - Jul '21

- Analyzed Stripe's business model and market position, suggested strategic initiatives to tackle problems faced during the Covid-19 pandemic

Drishtee's Tech Led Innovation for Rural Entrepreneurs | 9th Inter IIT Tech Meet | Gold Medal

Mar '21 - Apr '21

- Performed primary research among 100+ survey candidates; validated the product-market fit; led the design team for the IIT KGP contingent

Hult Prize Challenge, IIT Kharagpur | Campus Finalists

Nov '20 - Dec '20

- Proposed a systematic storage and sale platform for crops to minimize wastage in the domestic food supply chain and improve food security

SKILLS

Languages: C, C++, Python, Java, Javascript, HTML/CSS, SQL **Libraries:** pandas, PyTorch, Tensorflow, Keras, sklearn, PIL, OpenCV, NLTK, React

Skills: Web Development, Agile, Git Version Control, Linux Shell, Excel, Photoshop and Graphic Design, Figma

Coursework: Machine Learning | Artificial Intelligence | Linear Algebra | Probability & Statistics | Data Structures & Algorithms | Entrepreneurship

EXTRA CURRICULAR ACTIVITIES

Filmmaking - Gold Medal @ Inter IIT Cultural (2019)

Photography - Head @ Technology Filmmaking and Photography Society (2020-21)

Ad Design - Silver Medal (2018-19) and Gold Medal (2019-20) @ General Tech Championship, Gold Medal @ Brand-D Springfest (20219)