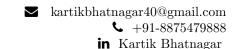
Kartik Bhatnagar

3rd Year Undergraduate
Department of Agricultural and Food Engineering
Indian Institute of Technology Kharagpur



Academic Qualifications

Year	Degree/Certificate	Institute	CGPA/%
2021 -	B.Tech in Agricultural and Food Engineering	Indian Institute of Technology, Kharagpur	8.20/10
Present	and M.Tech in Entrepreneurship Engineering		
2021	Class XII (CBSE)	St.Edmunds Public School	85%
2019	Class X (CBSE)	Maheshwari Public School	89.4%

Internships

AI Intern | Assisto Object Detection and Counting for Barista May 24 - Present

Objective: Enhance the performance of object detection systems in barista environments to achieve higher accuracy

- Developed dataset by extracting frames from barista CCTV footage & combining with open source dataset, augmented it using Roboflow
- Fine-tuned YOLOv8 model for Object detection, leading to a remarkable 15% increase in accuracy over the previous baseline model
- Developed an advanced object counting algorithm using the solutions class of Ultralytics for consistent object Counting and reporting

Text to Speech integrated with Voice Cloning

Objective: Optimize TTS model performance and integration to achieve advanced voice cloning capabilities effectively

- Fine-tuned a TTS model for 13 Indian languages, achieving a 5% reduction in CER for Hindi Language enhancing model intelligibility
- Developed robust pipeline integrating the fine-tuned TTS model with **OpenVoice** for advanced, high-quality voice cloning capabilities
- Successfully deployed & efficiently managed the TTS model on AWS EC2 instances, first dockerizing the model, ensuring scalability

Projects

Trumio.AI | Inter IIT Tech Meet 12.0 Madras

Oct 23 - Dec 23

Objective: Develop KPIs for the work collaboration platform to speed up individual selections for projects with relevant skills

- Engineered an advanced GitHub and resume scoring system using the Flan T5 model for comprehensive data aggregation and analysis
- Implemented vector embeddings with Text Embedding ADA-002 model for enhanced language proficiency assessment & ranking
- Developed an adaptive learning system that dynamically adjusts test difficulty based on real-time user performance data
- Integrated automated Cron jobs with News API to curate and deliver industry-specific insights, enhancing relevance for platform users

Image Compression using Quadtrees Self Project

Dec 23 - Jan 24

Objective: Create a highly efficient image compression system that reduces file size while maintaining visual quality.

- Implemented recursive subdivision based on pixel similarity, using Python for building Quadtrees and OpenCV for image processing
- Achieved a remarkably high compression ratio ranging between 0.12 and 0.68, optimizing compression and preserving visual quality
- Optimized algorithm performance through parallel processing, resulting in a 40% reduction in compression time for large images

SoundAnalyzr — Self Project

Apr 24 - Jun 24

Objective: Develop an intelligent audio analysis tool for transcription, linguistic insights, and interactive content exploration

- Developed AI-powered voice analysis with **Deepgram** for speech recognition, created searchable transcripts & interactive audio controls
- Enhanced NLP with Compromise for text processing & sentiment analysis using AFINN-165 wordlist to improve transcript understand
- Built responsive UI with Next.js, integrated wavesurfer.js for audio visualization, react-tagcloud for word clouds & react-drag-drop-files

Skills and Relevant Course Work

- Languages / Libraries: C | C++ | Python | MATLAB | HTML | CSS | JavaScript | MySQL | Numpy | Pandas | Matplotlib | TensorFlow | Keras | Scikit-learn | Seaborn | Scipy | PyTorch | Ultralytics | Librosa | OpenCV
- Frameworks / Libraries / Tools : Git | Github | VScode | Jupyter Notebook | Power BI

COURSEWORK INFORMATION

Programming and Data Structures | Probability and Statistics | Partial Differential Equations | Data Structure & Algorithms | The Web Developer BootCamp | DL specialization | Foundations of Entrepreneurship | Economics | Application of ML in Agricultural practises.

Awards and Achievements

- Secured a rank amongst top 5.0% out of 2 Lakh candidates in Joint Entrance Examination Advanced, 2021
- Secured a rank amongst top 1% out of 12 Lakh candidates in Joint Entrance Examination Mains, 2021
- Squash GC 2022: Secured 1st position in the Inter-hall Squash Tournament out of 19 teams in the General Championship 2022-23
- Squash GC 2023: As Captain secured 3rd position in the Inter-hall Squash Tournament out of 21 teams in the GC 23-24
- Aavhan 23: Represented IIT Kharagpur in the IIT Bombay Aavhan 23 Squash Tournament, achieving a runner-up position

Positions of Responsibility

Associate Member | Institute wellness group, IIT Kharagpur

Feb 22 - Oct 22

- Developed and honed valuable skills in comprehensive planning, meticulous organization, and effective management of events.
- Successfully executed events promoting mental and social awareness, enhancing project management and logistical capabilities.

Secretary | Agricultural Engineering Society

Feb 22- April 23

• Developed expertise in acquiring strategic sponsorships for major events like PRAKRITI, successfully identifying and securing sponsors

• Coordinated sponsor tasks, timelines, and deliverables to ensure smooth integration and successful execution in major events