DHRUV JAIN

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Examination	University	Degree	Major	Year	CPI
Post Graduation	IIT Bombay	M.Tech	Computer Science & Engineering	2022-25	9.00
Graduation	IIT Dharwad	B.Tech	Electrical Engineering	2018-22	8.89

TECHNICAL SKILLS

- **Programming**: Python, C/C++, Java, MATLAB, HTML, PHP, CSS, Javascript, Git, Bash, Docker, Latex, SQL & Linux.
- **Tools**: Tensorflow, OpenCV, Android Studios, Amazon Web Services, Django, Nvidia Jetson & DNS Management.

WORK EXPERIENCE

- **AI-ASSITED GRADING IN SAFE APP** (SMART AUTHENTICATED FAST EXAMS, IIT BOMBAY INITIATIVE)
  M.Tech Thesis | *Guide:* ***Prof. Bhaskaran Raman & Prof. Parag Chaudhuri*** *(Jan'24-Present)*
  - Developed an **OCR model** with Detection & Recognition phases, using **synthetic data** from IAM Annotations.
  - Deployed an **optimized** OCR model using **TensorRT Runtime** to ensure faster real-time **performance/efficiency**.
- **QUANTITATIVE ANALYST INTERN | DOLAT CAPITAL MARKET PVT LTD, MUMBAI** *(May'24-July'24)*
  - Developed a stratergy for **Synthetic Basket Arbitrage Opportunities**, considering execution costs in python.
  - Optimized code for deployment in production server for automated trading based on **pre-set entry/exit** configs.
- **A.I ENGINEER INTERN | EXAWIZARDS INDIA LLP, HYDERABAD** *(Aug'21-Jun'23)*
  - **Behavioural Analysis of Pets:** Developed MMPose tracking model integrated with Tkinter for monitoring pets' activities, sleep schedules, & toilet patterns using live feed from cat house, enhancing caretaking experience.
  - **Anomaly Detection on UCR Time Series Dataset:** Encoded time series data into Gramian Angular Field (GAF) images & employed the few-shot Patchcore algorithm to detect & flag anomalies in the system.
  - **Split Computing:** Deployed encoder on M5stack edge device & decoder on Jetson Nano server for split pipeline.
  - **Math Word Problem Solver:** Developed a Seq2Seq model to solve problems from SVAMP dataset.
  - **Image generation:** Developed a cGAN to generate NIR images from RGB, to enhance classification using NDVI.
  - **Image Segmentation:** Developed an object detection model using Near Infrared (NIR), using OPEN-MMLAB.
  - **Fruit Detection:** Developed a MaskRCNN model to detect various fruits using Kaggle's Fruits-360 dataset.

PATENTS & RESEARCH PAPERS

- **MULTISPECTRAL MASK EXTRACTION GUI | EXAWIZARDS JAPAN INC** *(Patent No: P21062JP00)*
  - Developed an **GUI** for extracting Region of Interest (ROI) masks from videos, performing **image segmentation**, object processing, & efficiently **organizing outcomes** into excel files, with extensive **customization capabilities**.
- **ONLINE MULTI-TARGET TRACKING | BHARAT ELECTRONICS LIMITED** *(IEEE Radar Sys)*
  - Developed an **tracking system** using Temporal Convolutional Networks, surpassing Kalman-based methods, to enhance probabilistic predictions, **track association**, & trajectory smoothing for objects for **Indian Military radars**.

POSITION OF RESPONSIBILITIES

- **HEAD WEB COORDINATOR & DEVELOPER** | ***PLACEMENT TEAM, IIT BOMBAY*** *(Aug'23-Jul'24)*
  - Oversaw the coordination & management of the placement portal for **2000+** students.
  - Managed development team of 10+ for website feature updates & bug fixes.
- **ANDROID DEVELOPER & RESEARCH ASSISTANT** | ***SAFE TEAM, IIT BOMBDAY*** *(Aug'23-Jul'24)*
  - Managed GitHub repo for Android side, including bug fixing, feature development, & merging pull requests.
  - Modified app to conduct exams for **Bharat Forge** employees, providing Marathi language support on emulators.

COURSE PROJECTS & ASSIGNMENTS

- **STAMP DETECTION IN OFFLINE ELECTORAL BALLOTS** *(EE 769)*
  - Implemented a system for elections, featuring real-time vote counting, alongside an app for ballot processing.
- **BLOCKCHAIN-based DECENTRALIZED FAKE NEWS DETECTOR** *(CS 765)*
  - Designed a DApp for fact-checking of news articles & aggregate votes to output a fakeness score.
- **PART-OF-SPEECH TAGGING using WORD2VEC & NEURAL NETWORKS** *(CS 772)*
  - Developed a tagging model using word embeddings, comparing its performance on the Universal Tag Set.
- **AUTOMATED HEADLINE GENERATOR for TEXT SUMMARIZATION** *(CS 772)*
  - Developed an system to generate headlines, accurately summarizing the context of text descriptions.
- **REAL-TIME SPEECH RECOGNITION SOFTWARE** *(EE 407)*
  - Implemented a end-to-end recognition system using Deep Learning & Verilog on a FPGA hardware.

EXTRA-CURRICULAR ADDONS

- Awarded Best Startup by IIT Bombay for SAFE App; led teams in E-Commerce Development & Marketing.
- Completed various courses on Programming, ML, WebD, & Finance from platforms like Udemy & Coursera.
- Participated in ISRO's Space Science program & Inter IIT Tech Meet; runner-up in SIH ML Competition.
- Part-time stock trader managing family portfolios; active in multiple tech & mentorship clubs.
- Enthusiast in AI, space science, & quantum computing; avid sports player & Sci-Fi fan.

KEY COURSES TAKEN

- Blockchains & Crypto
- Machine Learning
- Reinforcement Agents
- AI, Data & Policy
- Virtualization & Cloud
- Deep Learning for NLP
- Computer Graphics
- Design of Systems