DEVARSHI AGGARWAL

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SUMMARY

A dynamic and innovative **Physical AI & Deep Learning Engineer** with hands-on experience in computer vision, machine learning, and artificial intelligence. Have demonstrated expertise in developing and deploying cutting-edge solutions for diverse applications such as footfall counting, licence plate recognition, and employee punctuality scoring. Proven ability to leverage advanced tools and technologies like PyTorch, OpenCV, and Docker enables the team to deliver scalable and efficient real-time solutions. With excellent problem-solving abilities, consistently deliver high-quality projects within deadline constraints. Skilled in extracting actionable insights from complex datasets, driving impactful decision-making. Adept at collaboration and communication, with a passion for continuous learning and staying updated with the latest advancements in the field.

EXPERIENCE

Samsung Electro Mechanics, India
Deep Learning Engineer *December 2024 - Present*

- Working on Dual arm titan robot isaac simulator reinforcement learning and imitation learning training. Improved task success rate from 0 to 99%. Conducted >100 RL and IL training experiments to achieve this.
- Worked on a driver management system, which included features such as driver gaze direction, driver sleepiness amongst others. Trained face detection, identification and facial landmark detection models with >90% accuracy

Jio, India
Deep Learning Engineer *April 2022 - December 2024*

- Worked on novel architecture for an optimized deployment of people footfall counting, heatmap and flowmap.
- Improved detection in JioANPR system from 90% to 95%. Improved recognition accuracy from 83% to 94%. Overall accuracy of pipeline post tracking is at 99%. Developed reproducible retraining pipeline.
- Leveraged NVIDIA-Deepstream for efficient and scalable real-time solution. In JioFootfall, increased camera density per GPU from 8 cameras to 108 cameras.
- Machine learning solution for punctuality score service of employees.
- For face detection and person access control, leveraged vector database Milvus for real-time feature vector search with very low lookup latency.

Agro Informatics Lab, IIT Bombay, India
Computer Vision Intern *Aug 2021 - March 2022*

- Extracted differentiating features from images of various genotypes of rice.
- Used machine learning techniques to identify the best species for inter-species breeding.
- Made tools and scripts for data labelling and data augmentations which greatly improved manual labelling time by 75%.

Freelancer
Freelancer *July 2020-July 2021*

- Worked for various clients on small and medium-sized projects using python and deep learning skills.
- Developed a deep reinforcement learning model for trading on the metatrader tool, for an independent client.

Department of Computer Science, IIT Bombay
Machine Learning Intern *July 2019- May 2020*

- Mentor: Pankaj Singh, Project Research Associate, IIT Bombay
- Designed and developed an annotation tool Form Labeller using Python and Tkinter for efficient data labelling for the use case.
- Created a Form Schema detection three-step pipeline, with box detection, OCR and then schema detection which could extract and tabulate information from hand-written or printed forms in <1s.
- Obfuscated, binarized and licensed two projects for clients using pyarmor and pyinstaller.

Publications

Leaf Count Aided Novel Framework for Rice (Oryza sativa L.) Genotypes Discrimination in Phenomics: Leveraging Computer Vision and Deep Learning Applications

- Published in MDPI - Link: https://www.mdpi.com/2223-7747/11/19/2663

On 3-Degree 4-Chordal Graphs

Found polynomial time algorithms for classical NPC problems like vertex cover, dominating set, feedback vertex set for the graph subclass - maximum degree 4 max chordality 3

- Paper presented in IEEE CICT 2020 - Link: https://ieeexplore.ieee.org/document/9312070

EDUCATION

BITS – Pilani, India *July 2025 – Present*
Masters of Engineering, Artificial Intelligence & Machine Learning;
- Currently Enrolled in Work Integrated Master's Programme

IIITDM-Kancheepuram, India *July 2015 – June 2019*
Bachelor of Engineering, Computer Science; Cumulative GPA: 8.18/10.0
- Relevant coursework: Artificial Intelligence Search Methods for Problem Solving, Pattern Recognition, Digital Image Processing, Joy of Computing using Python, Operating Systems, Probability Theory, Linear Algebra, Differential Equations, Calculus, Design and Analysis of Algorithms, Database Systems

Sunbeam School Lahartara – Varanas**i,** India *July 2012-June 2014*
Secondary School; Cumulative GPA(CBSE): 93.0%/100.0

SKILLS

Programming Languages: Python(Expert), SQL(Expert), C(Intermediate), Shell(Intermediate), Rust (beginner)
Tools: Isaacsim, Isaaclab, PyTorch, Numpy, Pandas, Sklearn, OpenCV, Django, Docker, Milvus, Deepstream, Ultralytics, Locust, Streamlit, 3D Printing(Advanced), CAD Design (Intermediate)
Languages: Fluent in English, Hindi

EXTERNAL LINKS

- GitHub - https://github.com/devarshi16
- Technical Blog - https://attackonalgorithms.wordpress.com/
- Portfolio Website - https://devarshi16.github.io/

OTHER ACHIEVEMENTS

- Secured **AIR-5320 (GEN) in IIT JEE-Advanced 2015**