Atharva Chandak

SOFTWARE ENGINEER AT WELLS FARGO

✉ atharvachandak208@gmail.com | ⌂ atharva-chandak.github.io | ⊙ atharva-chandak |
in atharva-chandak | 🐦 @atharva2chandak

Work Experience

Wells Fargo
SOFTWARE ENGINEER

Bengaluru, India
JUL 2023 - PRESENT

- **Full-stack developer** using **Spring Boot** and **React** to support 18k+ merchants offering Private Label Credit Cards & Loans.
- Building **API services** for Point of Sale EMIs to enable convenient payment for customers.
- Prototyping a secure and scalable **personalized chatbot for merchants** to help simplify UX and increase engagement.

Mila / Robotics and Embodied AI Lab, University of Montreal
RESEARCH INTERN   (SUPERVISOR: PROF. LIAM PAULL)

Montreal, Canada
JAN 2023 - JUN 2023

- Pursued **autonomous driving** focused **Continual Object Detection** as part of **undergraduate thesis**.
- Proposed **new approaches** for **on-device Domain-Incremental Object Detection** for robotic applications.
- Achieved a domain incremental **avg mAP50 of 68.63 and mAP of 43.89** on the CLAD-D dataset.

Wells Fargo
INTERN

Hyderabad, India (Remote)
MAY 2022 - JUL 2022

- Conceptualized and created an **end-to-end AI enabled speech chatbot** for answering user home lending queries.
- Integrated **speech-to-text** and **text-to-speech** APIs for allowing speech interaction with the bot.
- Implemented **NLP pipeline** for **intent and entity extraction** and achieved an **F1 scores** of **93.4%** and **83.5%**.
- Authored the **action server to process the user request** demands and **response curation** for replying back to user.

Visual Computing Group, Harvard SEAS
VISITING UNDERGRADUATE INTERN   (SUPERVISOR: PROF. HANSPETER PFISTER)

Cambridge, USA (Remote)
JAN 2022 - MAY 2022

- Contributed to the **Pytorch Connectomics** package adding cellpose model for neuron instance segmentation.
- Explored **semi-supervised methods** to improve upon the performance of **3D segmentation**.
- Designed an end-to-end **pipeline using long range affinity learning and transformers** for improving model accuracy.

AI and Robotics Laboratory, Indian Institute of Science
INTERN   (SUPERVISOR: PROF. SURESH SUNDARAM)

Bangalore, India (Remote)
JUN 2021 - DEC 2021

- Worked on **Generalized Continual Zero Shot Learning** for various **Computer Vision tasks.**
- **Integrated incremental learning with the zero shot learning framework** for more realistic adoption of DL methods.
- Extended the work to **generalized, out of distribution tasks** enabling **task free learning**.

CSIR-CEERI
SUMMER INTERN   (SUPERVISOR: DR. AMALIN PRINCE & MR. J SURIYA PRAKASH)

Chennai, India (Remote)
MAY 2021 - AUG 2021

- Worked on **texture classification** of images using both **traditional ML** and **deep learning** based methods.
- Used traditional computer vision **algorithms like FAST, ORB & BRISK** combined with ML classifiers like **SVMs, KNNs, etc.**

Skills

Languages	Python, Java, C, JavaScript
Deep Learning	Pytorch, Tensorflow, Keras, Hugging Face
Machine Learning	scikit-learn, Numpy, OpenCV, Pandas, Matplotlib
Development	Flask, Nodejs, Expressjs, React, HTML5, SASS
Robotics	Robot Operating System(ROS)
Others	Git, Linux, Docker, LaTeX

Education

Birla Institute of Technology and Science, Pilani (BITS Pilani)
BACHELOR OF ENGINEERING IN COMPUTER SCIENCE

Pilani, India
AUG 2019 - JUN 2023

Competitions

E-Yantra Robotics Competition
e-Yantra IIT Bombay

RANK: TOP 20
SEP 2020 - MAR 2021

- Stood in the **top 20 teams** among 472 teams in the Robotics innovation challenge organized by IIT Bombay.
- **Maximized the number of delivery and returns of the parcels** by the UAV within fixed time to maximize score.
- Involved **control systems, path planning, image processing for QR scanning and marker detection, and developing algorithms** for a Gazebo simulated UAV.

AI RoboSoccer
IEEE BITS Pilani Chapter

RANK: 3RD
MAR 2021

- **Trained a Reinforcement Learning Agent** which maximized the performance score of the simulated soccer team.
- Objective **reward** was **based on the number of goals scored and the passing accuracy** of the simulated players
- Used the **PPO algorithm** from **stable-baselines library** implementation for training the RL agent.

Publications

AdQuestA: Knowledge-Guided Visual Question Answer Framework For Advertisements
(ACCEPTED) WACV 2025

- Created automatic **multimodal advertisement understanding** methods for Ad understanding, generation, etc.
- Leveraged **external knowledge** for allowing better learning by the models and utilize it for knowledge graph creation.
- Devised **multimodal transformer** based on **ad image**, **captions**, **topic model** and external knowledge to perform **VQA**.

LIFTNet: Action Recognition Across Varied Lighting Environments
(SUBMITTED) Elsevier Neural Networks Journal

- Built **light invariant action recognition systems** for applications in autonomous systems, surveillance, etc.
- Designed a **two-stream transformer architecture** which attends to **raw and GIC frames** to perform the recognition.
- **First work to target multiple data modalities** using a single architecture for both **visible RBG** as well as **infrared** videos.
- Achieved **state-of the-art on** four benchmark datasets - **ARID**, **HMDB51**, **UCF101**, and **InfAR**.

TartanAviation: Image, Speech, and ADS-B Trajectory Datasets for Terminal Airspace Operations
(Preprint) Arxiv

- Engaged in **long-range detection** and **tracking** of aerial vehicles to autonomously avoid collisions.
- Analysed a **new dataset - TartanAviation** with **3.1M images** for modelling **out of distribution** climatic conditions.
- **Designed optimized models** for **real-time usage** on the drone capturing high-resolution feed from multiple cameras.

Teaching Positions

Teaching Assistant
Pilani, India

COURSE: Neural Networks and Fuzzy Logic
AUG 2022 - DEC 2022

- Designed and conducted **course assignments** on various types of machine learning and deep learning models.
- **Delivered workshop sessions** teaching elementary concepts for programming neural networks.

Extracurricular & Volunteering

BITS-ACM Student Chapter   **Organized a software development hackathon** (HackBITSPilani); Contributed and managed various open source projects by BITS-ACM.

SHARE BITS Pilani   Solved various corporate level problems while also inculcating the "Do Well Do Good" ideology of ShARE; **Interned at** a startup (**Catalytic Corps**) to build a framework to identify and **solve problems in Indian MSME sector.**

National Service Scheme(NSS) at BITS Pilani   Volunteered at **Computer Literacy Program** team of NSS BITS Pilani; Also helped organise various social impact events like **Blood Donation Camps, Youth conference, etc.** for the people of Pilani.