

EDUCATION

University of Oxford – *MSc Advanced Computer Science*

[Graduation- December 2022]

University of Delhi – *BSc (Hons) Computer Science* – 8.42 CGPA, First Division Honours

[Class of 2020]

RESEARCH EXPERIENCE

Research Lead – Oxford Rhodes AI Lab

[May 2022 - Present]

- Leveraging GNNs to predict climate closures equation using symbolic regression in collaboration with **CalTech** (CLiMA), **MIT** & **NASA JPL**

Protein Language Modelling Research – Computational Biology Group, University of Oxford

[April 2022 - Present]

- Applying language modeling to predict COVID-19 mutations using transformer-based masked language modelling under Prof. Peter Minary

Privacy Preserving ML Researcher – Oxford Human Centred AI Group, University of Oxford

[Nov 2021 - Present]

- Working on the EWADA project under Prof. **Tim Berners-Lee** to build decentralised web apps with privacy preserving ML

Chatbot Development Research – University of Oxford

[Feb - Aug 2022]

- Developed a Question-Answering language model for the Philosophy Dept to help convey their research work over website/messenger

NLP Student Researcher – Department of Computer Science, University of Delhi

[March 2020 - July 2021]

- Built a serverless NLP-based web voice app for feedback collection. Spearheaded 3 projects- Ensemble ML Fake News detection, GPT-2 Research Article Title Generation & COVID-19 News Summariser using transformers. Co-authored and published papers in IEEE & Springer

Computer Vision Student Researcher – AI Research Lab, University of Delhi

[June – Sept 2019]

- Self-initiated research work under Dr. Amita Kapoor wherein I built an Assistive System for Autonomous Vehicles based on Deep Learning & Computer Vision. Compiled Darknet with OpenCV for real-time predictions. Implemented a bash script to automate bulk testing & mAP

WORK EXPERIENCE

Mobile Robotics Engineer – UVRobots

[Aug 2020 – Sept 2021]

- Developed Flask REST API to livestream video processed with Computer Vision techniques, built depth maps & visualised LiDAR odometry
- Built a React Native application which interacts with ROS melodic nodes and turtle bot to control navigation of the robot

Machine Learning Engineer – Omdena (*One of the 28 Global AI experts selected*)

[March – June 2020]

- Performed LDA topic modelling, time series analysis, correlation & exploratory data analysis on the COVID-19 policies by the governments to gauge the impact of the policies during a pandemic over the vulnerable groups. Results showcased at UN AI for Good Summit'20

Co-Founder – HushTech Solutions

[June 2019 – July 2021]

- Self-taught conversational technology developer, developing omni-channel messenger chatbots & RPA solutions powered by Natural Language Processing to help businesses automate their customer interactions, marketing and lead generation

Mobile Application Development Intern – Impute Inc.

[March – June 2019]

- Developed & extensively trained a Hybrid Chatbot with contextual conversation for Fluent8 iOS app using Node.js & Dialogflow AI
- Deployed webhooks on Firebase Cloud Function, directed fallback user queries to external APIs to enhance the conversational experience

Chatbot Development Intern – Inverted Sense

[Dec 2018 – March 2019]

- Built chatbots using Twilio & developed an in-built shopping cart with up-selling resulting in higher lead conversions & ROAS

PROJECTS | Github : github.com/hunarbatra

- covid19variants.org** [React, Python] - COVID-19 variants genomic surveillance open-tracker. Created data pipelines & built visualisations.
- COVID-19 Tweets Fake News Detection** [Python, NLTK, Scikit] - WhatsApp bot to classify fake news using ensemble ML boosting approach
- COVID-19 News Summarizer** [Python, Transformers] - GPT2, BERT, XLNet, T5, BART to perform abstractive/extractive text summarization
- Research Article Title Generation** [Python, GPT] - NLG fine-tuned GPT2 trained over arXiv articles for title generation of research abstracts
- HunAI** [Python, GPT] - DialoGPT DSTC model based Telegram Bot buddy, trained on Reddit discussions
- Real Time Voice Cloning** [Python, Synthesizer, TensorFlow] - Transfer Learning based voice cloning on the recorded input to generate TTS

AWARDS & ACHIEVEMENTS

- Google Women in Computer Science** Generation Scholarship EMEA, 2022
- Grace Hopper Conference Scholar**, Department of Computer Science, University of Oxford, 2022
- Deep Learning Theory Summer School Full-funding, Simons Institute for Theory of Computing, UC Berkeley, 2022
- Student of the Year**, Department of Computer Science, University of Delhi, 2020
- First Indian** to receive The Mars Generation **24 under 24** Award in Leaders & Innovators in STEAM category, 2019
- National Finalist, Smart India Hackathon** Software Edition, (out of 5,000 teams) in India's largest hackathon by MHRD Govt. of India, 2019
- Highest GPA** in Data Structure, Machine Learning, Computer Graphics, Android, Software Eng, System Programming, PHP, Microprocessor
- National Winner**, Summer with Google (out of 20,000 participants), 2018

SKILLS

- C++, C, Python, Javascript, HTML, CSS, Java, PHP, SQL, Application Development (Native, React Native)
- TensorFlow, PyTorch, PyTorch Geometric [[Merged PR](#)], Flask, OpenCV, Kubernetes, RASA, git, bash, Firebase, GCP, ROS, SOLID

RESEARCH PUBLICATIONS

- Medbot: Conversational Artificial Intelligence powered Chatbot for delivering Telehealth after COVID-19, **IEEE 5th International Conference on Communications and Electronic Systems** (ICCES 2020); Urmil Bharti, Deepali Bajaj, **Hunar Batra** et al., IEEE Xplore [[Link](#)]
- Serverless Deployment of a Voice-Bot for Visually Impaired, **International Conference on Applied Soft Computing & Communication Networks** (ACN 2020); Deepali Bajaj, Urmil Bharti, **Hunar Batra** et al., Book Chapter - Springer Singapore [[Link](#)]
- CoVShorts: News Summarization application based on Deep NLP transformers for SARS-CoV-2, **IEEE 9th International Conference on Reliability, Infocom Technologies and Optimization** (ICRITO 2021); **Hunar Batra**, Akansha J, et al. - IEEE [[Link](#)]
- MUCE - A Multilingual Use Case Model Extractor using GPT-3; Deepali Bajaj, **Hunar Batra** et. al, International Journal of Information Technology (IJIT 2022), **Springer** [[Link](#)]