BHAVIN JAWADE

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EDUCATION

University at Buffalo, SUNY	Doctor of Philosophy	Computer Science	Deep Learning	**GPA: 3.9 / 4**	First year
University at Buffalo, SUNY	Masters of Science	Computer Science	Artificial Intelligence	**GPA: 3.8 / 4**	May 2021
Shri G.S. Institute of Tech and Sci	Bachelors of Engineering	Information Technology	Computer Vision	**GPA: 3.8 / 4**	June 2019

SKILLS

Languages and Frameworks: **Python**, PHP, Java, JavaScript, Go (**Golang**), C++, C, SQL, HTML, CSS, R, Dart, Angular 8, React, TensorFlow, **Pytorch**, Laravel, PHP, Pandas, Dask, Numpy, React Native, Android, OpenCV, Java Spring, Flutter
Databases: SQL Server, MySQL, MongoDB, Redis, Cassandra, Solr, No-SQL
Software Tools: MATLAB, Visual Studio, Android Studio, Jupyter Notebook, Xcode

WORK EXPERIENCE

Research Foundation SUNY | **Research Assistant:** Center for Unified Biometrics and Sensors — Buffalo, NY | Jun 2020 - Present

- **NSF CITER Grant -** Developed a multi-task learning based CNN network trained with Deep metric losses (Contrastive, Adacos) along with minutiae loss to match contactless fingerprints captured using smartphone camera against legacy fingerprints.
- **NSF DIBBS Grant - MLToolkit** - Responsible for creating the full-stack application where the user can drag and drop the different elements to create and execute machine learning pipelines. https://git.io/JtJ4d
- **USPS Grant** - Automated Handwriting Recognition with attention-based Bidirectional LSTM. Using CTC gained a 10.2% CER rate on the IAM dataset and 8.3% on the USPS dataset.
- **Tech:** React Native, Flutter, Scikit-learn, Celery, Flask, Django, Python, Angular, Jenkins, MongoDB, Pytorch

Persistent Systems **| Software Engineer** — Pune, India | Jul 2019 - Dec 2019

- Built OCR ML application for banks to auto-analyse POS invoices saving $200,000 per annum & 100 hours/week.
- Developed an Invoice Management tool for a Supply Chain firm to automate the supplier-distributor financing process and decrease finance approval time by 43%.
- **Tech:** Java, React, Azure, Spring, Microservices, Angular8, React, Python, SQL, DevOps (Jenkins), Cloud, AWS, GCP

Preflet AI - Portugal **| Freelance Machine Learning Engineer** — Remote | Jan 2019 - Sep 2019

- Created end-to-end ML auto-ML application to reduce time to build data science pipeline by 59%.
- Built data connectors and Visualizers for parallel processing large datasets (up to 25TB) with analytics.
- **Tech:** Python, Dask, PySpark, Pandas, NoSQL, MongoDB, Scikit-Learn, Matplotlib, ElectronJS, Angular8

IIT Madras, Department of Computer Science **| Remote Research Intern** (*Prof. Rupesh Nasre*) — Remote| Feb 2019 May 2019

- Designed an efficient algorithm to compute execution time for updating million node DAG in hierarchical task scheduling.
- Algorithm computes the result for 1000000 node DAG & 1000 updates within 0.8 seconds (near-linear ~O(n))
- **Tech**: Python, Cython, C++, Matplotlib, Heaps, Pyplot, Seaborn, Algorithms, and Data Structures

RESEARCH PAPER / PUBLICATIONS

Multi Loss Fusion For Matching Smartphone Captured Contactless Finger Images — Sept 2021
Accepted at IEEE WIFS 2021 (International Workshop on Information Forensics and Security)

Low computation in-device geofencing using hierarchy-based searching for offline usage — Nov 2018
IEEE Xplore (https://cutt.ly/fjWMULt) | ICICT 2018 (International Conference on Inventive Computation Technologies)
The algorithm is 20% faster and 33% more accurate than google maps geofencing with a validation margin of less than 3 meters.

ACADEMIC PROJECTS

Attention based Neural Image Captioning — Oct 2020

- Implemented Show Attend and Tell's Neural Image Captioning model with 2 attention mechanisms with 3 different encoders.
- Improved it by implementing Adaptive Attention Mechanism. Used ResNet 101, DenseNet 201 and VGG 16 CNNs for encoder.
- Attained 0.39 BLEU-4 Score with 88% accuracy on captioning and 94.5 Top-5 accuracy on classification.
- **Tech:** Pytorch, Python, Sklearn, NLTK, Deep Learning, LSTM, BLEU-4, Machine Learning, Neural Networks, Azure.

Reinforcement Learning - Actor Critic | DQN | Multiagent RL | Atari Games — Jan 2020

- Trained a CNN-based Deep Q Network, Dueling Network, and Policy gradient algorithms - Advantage Actor-Critic to play Atari Games at a human level performance. Improved DQN reward by using dueling from 9200 to 30250 on roadrunner.
- Multiagent Reinforcement Learning algorithm to solve a Ship Docker Problem, A2C convergence in just 6 hours of training.
- **Tech:** Pytorch, Tensorflow, OpenAI Gym, AWS.

Now You See Me - The Blind Project | **Project video:** http://bit.do/nysmvideo — Jan 2019

- Led the team of 4 to build an app for giving full visual analysis of the environment in voice feed to a visually impaired person.
- Tested the app with 60 visually impaired students at National Institute for blind and achieved 98% acceptance in alpha testing.
- 'Now You See Me' uses a self-designed multi-thread architecture using TensorFlow, OpenCV, and Microsoft Azure.
- **Tech:** Android, Tensorflow, Cognitive Services, Celery, Firebase, Maps API, Auth0.

ACHIEVEMENTS

Second Position (Winner) - Maple Ridge Hackathon (Govt. of British Columbia)
Represented India at Microsoft Student Partner Asia Summit at Taiwan (Top 5)
Awarded for *eLogbook* by Hon' Minister of State, Central India
Grand Finalist Smart India Hackathon, 2019
Winner of WittyHacks Hackathon 2018
Represented College at ACM ICPC Regionals 2017, IIITM

POSITIONS OF RESPONSIBILITY

President - CSE GSA (UB)
Co-lead Facebook Developer Circle Indore
Founder - Techno-learning (#include) club
Head, Design - Entrepreneurship Cell SGSITS
City Head - Microsoft Student Partner
Vice-Captain - Aeromodelling club SGSITS