HARSH SHARMA

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KEY SKILLS

Programming: Python, C++, Java, Objective-C, JavaScript

Frameworks: PyTorch, TensorFlow, Spark (Databricks), AzureML, CoreML, OpenCV

Tools: Databricks, Azure Kubernetes, AWS Sagemaker, GCP, Streamlit, OCR, REST APIs

Specializations: Deep Learning, Computer Vision, Generative AI, Edge ML Optimization, Applied LLM, RLHF

Methodologies: CI/CD, Agile, Responsible AI, Active Learning, ETL Pipelines

EDUCATION

M. Sc. in Computing Science with specialization in Multimedia Sept 2018-April 2020
University of Alberta, Edmonton, Canada

B.E. (Hons.) Electrical and Electronics Engineering Aug 2011-Jul 2015
Birla Institute of Technology and Science, Pilani, India

CERTIFICATIONS

- Microsoft Certified: Azure Data Scientist Associate (Exam DP-100) Expires on 14 April 2025
- Microsoft Certified: Azure Data Engineer Associate (Exam DP-203) Expires on 30 June 2025

WORK EXPERIENCE

Staff Machine Learning Developer, AltaML Inc., Edmonton, Canada Sep 2019-Present

Led development of multiple client projects using PyTorch, Vision AI, AzureML, and CoreML while maintaining dev standards for production scalability. *PyTorch, Vision, CoreML, AzureML*

- Led a cross-functional team to design, develop, and deploy a deep learning model for storm surge prediction, achieving a projected 10x improvement in accuracy and reliability over existing solutions. Developed and deployed a custom CNN model using PyTorch in Databricks
- Designed and implemented a deep learning pipeline to detect whales in satellite images. Deployed a scalable solution for real-time inference using Azure Kubernetes.
- Leveraged Generative AI and Reinforcement Learning using Human Feedback to generate synthetic data and enhance model performance for the deployed model.
- Drove the development of an LLM-powered search engine for client documents and historical data. Created ETL pipelines for OCR-based data extraction, integrated into a React frontend for efficient document search, increasing retrieval accuracy by 30
- Implemented CI/CD pipelines for scalable and automated deployment across environments.
- Developed and deployed a production-grade capital planning dashboard, using Azure ML Pipelines for scheduled data refreshes, SQL-based caching for performance, and Python multiprocessing to optimize live data processing.
- Patented a deep learning model to classify feline emotions with 85% accuracy. Ported the model for mobile-first deployment using CoreML and integrated it into the Tably iPhone app, which was featured in Wired Magazine. Deployed the model on AWS Sagemaker and GCP, creating REST APIs for scalable access.
- Created and deployed a deep learning pipeline to detect cracks in fireproofing material with 92% accuracy, saving the client $1.2 million annually. Enhanced model performance using Active Learning for data labeling.
- Advocated for Responsible AI practices; actively mentored junior developers, and promoted inclusive team culture.

Research Assistant, University of Alberta, Edmonton, Canada Feb 2019-Aug 2019
Member of the Multimedia Research Center *C++, Point Cloud Library, Python*

- Contributed to a novel 3D object recognition and 6D pose estimation method without external markers. *Published in Sensors, a leading international, peer-reviewed, open access journal.*
- Leveraged the Point Cloud Library to estimate object pose based on 3D scans, improving the accuracy and speed of object identification in industrial settings.
- Created a dataset of industrial objects by 3D printing and scanning them with a depth camera for training machine learning models.

Software Developer, Seven Lakes Technologies, Bangalore, India Oct 2016-July 2018
Core member of the Joyn-FDG^{TM} app development team *C#, Objective C, Java, JavaScript, Python*

- Implemented dynamic route generation algorithm - a priority-based algorithm that helps the client prioritize the work and improve efficiency (Java)
- Stabilized the Windows application by contributing to the redesign and implementing key features while simultaneously porting key features to the iOS app (WPF/.NET/C#/Objective-C)
- Initiated unit test strategies for various products and apps.

Applications Engineer, Oracle India Pvt. Ltd., Bangalore, India Jun 2015-Sept 2016
Member of CPQ Cloud Development team *Java, Oracle ADF*

- Enhanced functionality for CPQ Cloud products, including support for accessibility and translations.

PROFESSIONAL TRAINING

Self-Driving Car Engineer Dec 2016-Jan 2018
Nanodegree program, Udacity.com *C++, Python - TensorFlow, Keras*

- Topics covered - Computer Vision, Deep Learning, Sensor Fusion, Localization, Control, Path Planning, Concentrations, and Systems

PATENTS AND PUBLICATIONS

- Davies, K.T.A. et al. (2025) *SemiAutomated detection of right whales (Eubalaenaspp.) in Very HighResolution satellite imagery,* Marine Mammal Science. https://doi.org/10.1111/mms.70024.
- *Feline comfort level classification system and method*, SHARMA, H., KOTTAYIL, N., BECKER, R., & GROENEVELD, S. (2023, January 12, WO2023279197A1).
- *Automated Classification of Parkinsons Disease Using Diffusion Tensor Imaging Data*, H Sharma, S Soltaninejad, I Cheng, International Symposium on Visual Computing, 658-669
- *Marker-Less 3d Object Recognition and 6d Pose Estimation for Homogeneous Textureless Objects: An RGB-D Approach*, N Hajari, G Lugo Bustillo, H Sharma, I Cheng, Sensors 20 (18), 5098
- *Synthetic Aerial Image Generation and Runway Segmentation*, H Sharma, C Liu, I Cheng, International Conference on Smart Multimedia, 429-438
- *Semantic Learning for Image Compression (SLIC)*, K Mahalingaiah, H Sharma, P Kaplish, I Cheng, International Conference on Smart Multimedia, 57-66