

# Prakash Chaudhary

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## Summary

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I am a Machine Learning Engineer with a proven ability to turn innovative ideas into practical solutions. I have a strong foundation in computer vision sales forecasting, and recommendation systems. Alongside my industry experience, I am a dedicated educator, sharing my knowledge in data science with the next generation of professionals. I am eager to embrace new challenges and drive innovation in your dynamic team.

## Industry Experience

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### Styldod Inc.

Machine Learning Consultant

Bangalore, India

Jun 2022 - Sep 2022

- Used DatasetGAN model to create high-quality, semantically segmented image apartment rooms datasets.
- Researched GAN models like ATISS and BlobGAN for virtual staging of apartment rooms.

### Fusemachines

Machine Learning Engineer

Kathmandu, Nepal

Feb 2020 - May 2022

- Teamed as a lead ML engineer for projects under Coach and Kate Spade's data science team.
- Sales Forecasting:**
  - Developed a self-supervised multimodal contrastive learning architecture to forecast sales of unreleased products.
  - Analyzed extensive time series datasets using SQL, Pandas, and Plotly to identify product cannibalism.
  - Implemented a Multi-Quantile RNN-based PyTorch model, reducing stockouts by 30%.
- Product Segmentation:** Built an ensemble model using computer vision and scikit-learn, achieving 62% accuracy, doubling product classification improvement for customer segments.
- Recommendation System:** Designed an in-house recommendation system pipeline for fashion products, fine-tuning an open-source Factorization Machine model to achieve Precision@k and MRR comparable to AWS's recommendation engine.
- Talent Development:** Interviewed candidates for the AI Fellowship program and mentored associates/trainees

### Betterhalf.ai

Machine Learning Engineer

Bangalore, India

Nov 2019 - Feb 2020

- Matchmaking App:**
  - Enhanced sign-up efficiency by approximately 30% through the creation of predictive models using LSTM networks for NLP, automating user profiles with minimal input.
  - Developed an NSFW image detection model using OpenCV and Tesseract-OCR, effectively identifying and flagging images containing NSFW text, ensuring a safer and more enjoyable user experience.

## Academic Experience

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### NASA-IMPACT

Graduate Research Assistant

Huntsville, AL

Aug 2022 - Present

- Developed initial hierarchical classification model for generating hierarchical tags for documents in the Earth Science domain, improving document organization and retrieval.
- Established a machine learning pipeline to accurately determine the material composition of mixed materials through their spectral signatures, contributing to advancements in Earth Science analysis and research.

### Fusemachines

Lecturer & Teaching Assistant

Kathmandu, Nepal

Mar 2022 - Present

- Teaching 50+ students in Data Science, covering Python, NumPy, pandas, Matplotlib, REST API, SQL, probability, statistics, linear algebra, LLM, and MLOps as part of the AI Fellowship Latin America 2023.
- Taught Computer Vision as a lecturer and assisted with Machine Learning and Deep Learning courses as a Teaching Assistant for the AI Fellowship Nepal in 2022.
- Conducted in recitation class, lab and paper reading sessions to facilitate a comprehensive learning experience for more than 100 students using tools like google jamboard, jupyter notebook & rise extension.

### Robotics Club, Pulchowk Campus, Tribhuvan University

Robotics Engineer

Lalitpur, Nepal

Sep 2016 - Jun 2019

- ABU Robocon 2019, Mongolia:** Mentored and oversaw juniors for the competition
- ABU Robocon 2018, Vietnam:** Worked on kinematics, control, and navigation of the automatic robot to throw the shuttlecock received from manual robot using C programming language on ARM devices.
- ABU Robocon 2017, Japan:** Worked on the design, fabrication, and testing of the PCB circuits used in the automatic robot with 3 DOF triangular Stewart platform

## Education

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<b>University of Alabama in Huntsville</b>	Huntsville, AL
Master of Science in Computer Science (Thesis)	Aug 2022 - May 2024
<b>MITx on edX</b>	Online
MicroMasters in Statistics and Data Science	May 2020 - Aug 2021
<b>Pulchowk Campus, Tribhuvan University</b>	Lalitpur, Nepal
Bachelor of Engineering in Electronics and Communications	Nov 2015 - Nov 2020

## Publications

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<b>Search Disaster Victims using Sound Source Localization</b>	Jun 2020
17th International Conference on Information Systems for Crisis Response and Management, ISCRAM 2020	

## Projects

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<b>Spectral Unmixing using Machine Learning</b>	Mar 2023 - Oct 2023
A ML system for material characterization using spectral signal from Infrared (IR) spectroscopy. <ul style="list-style-type: none"><li>Developed and implemented a neural network model that exhibited exceptional regression and classification performance in predicting the composition of various materials within disparate datasets.</li></ul>	
<b>Sound Source Localization</b>	Dec 2018 - Aug 2019
An 8-microphone cubical mesh that records the azimuth and elevation of an incoming sound source. <ul style="list-style-type: none"><li>Constructed a localization system with the GCC-PHAT algorithm and microphone mesh, and applied CNN architecture to denoise speech and reach 95% accuracy in 3D localization in the range of 1.5 meters.</li></ul>	
<b>Foxhound Security Solution</b>	Nov 2019 - Feb 2020
SaaS-based user's behavior anomaly detection and network event log analyzer built using distributed ML. <ul style="list-style-type: none"><li>Designed and developed a continual machine learning system for anomaly detection, analytics, and reasoning using Pyspark for ETL, an AutoEncoder architecture, and statistical reasoning.</li></ul>	
<b>Mail Classifier</b>	Jun 2019
Comparative study of machine learning and deep learning models on mail classification task. <ul style="list-style-type: none"><li>Built a SVM and LSTM models to compare the performance on classifying mail into one of the spam, ham, promotion, and social category.</li></ul>	

## Achievements

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**Best Project Poster Award:** Awarded by the department of electronics and computer engineering for the poster presentation of our senior year project in engineering.

**Best Instrumentation Project:** Awarded for our project IOT Based Home automation under the Instrumentation category at National Technological Exhibition (LOCUS) held in Nepal.

**Best Shuttlecock Award:** Awarded for the best design of shuttlecock coordination and picking mechanism in manual and automatic robot presented in ABU Robocon 2018, Vietnam (more).

**ROHM Award:** Awarded by ROHM semiconductors for the unique design and operation of four legged automatic robot in ABU Robocon 2019, Mongolia.

## Certifications

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**MicroMasters in Statistics and Data Science** from MITx on edX

**AWS Certified Machine Learning Specialty** from AWS Training

**Deep Learning Specialization** from deeplearning.ai on *Coursera*

**Natural language Processing Specialization** from deeplearning.ai on *Coursera*