Priyanka Chaudhary

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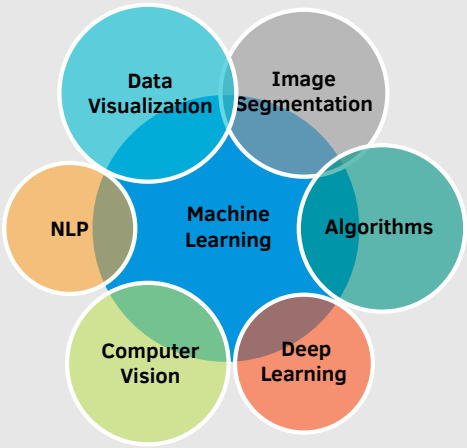
Research Experience and Interests



Programming

Python • Tensorflow • Pytorch

C • C++ • Keras

OpenCV • MATLAB

About Me

Dynamic and results-oriented researcher with a specialization in Computer Vision and Machine Learning. Dedicated to advancing the field and driving innovation through impactful research and practical applications. Holds a **B EU/EFTA Permit**.

Education

Nov 2018 - Jun 2023 — **PhD Candidate/ Scientific Assistant** — ETH Zürich
Computer Vision and Machine Learning

Oct 2015 - Sep 2018 — **MSc. Informatics** — Technical University of Munich
1.5, Passed with distinction

Aug 2009 - May 2013 — **BTech. Software Engineering** — Delhi Technological University
Avg. - 75.27, First Division with Distinction

Research

Nov 2018 - Jun 2023 — **PhD Candidate** — ETH Zürich
Deep learning for Urban Flood Depth Estimation

- Developed and proposed a probabilistic deep learning approach for the prediction of maximum water depth hazard maps that assigns well-calibrated uncertainty estimates in "Flood Uncertainty Estimation using Deep Ensembles". [Link]
- Design and implementation of multi-task deep learning approach to estimate water level from social media images by combining water level regression with a relative ranking of image pairs in "Water level prediction from social media images with a multi-task ranking approach".
- Investigate the trade-off between an object-driven approach with pixel-accurate segmentation labels, versus a regression of the water level with (or without) support from weak pairwise rankings. [Link]
- **Best Paper Award** at ISPRS Geospatial Week 2019 in Semantic Scene Analysis and 3D Reconstruction from Images and Images Sequences track.
- **Tools**: Python, PyTorch, Keras, Matplotlib

Nov 2017 - Aug 2018 — **Master Thesis** — Computer Vision Group, TUM, EcoVision Lab, ETHZ
Floodwater-estimation through semantic image interpretation

The focus of this thesis was to use images collected from social media of various flood events and use them to quantify the flood. In this thesis we used different objects of known dimensions partially submerged in flood water to predict floodwater-level. My contributions included:

- Design and implementation of annotation strategy to build models for floodwater-level prediction.
- Implementation of deep learning framework for Flood height prediction.
- **Tools**: Python, Keras, Tensorflow, Matplotlib

Apr 2016 - Sep 2016 — **Advanced Practical Course** — Chair of Bioinformatics@TUM
Data Mining Lab

In a team of three:

- During the course, we went through the whole path of data mining from dataset preparation up to meaningful predictions.
- It included the following steps: dataset search and description, understanding the data and naive introspection, feature construction and selection and prediction and evaluation.
- **Tools**: Python, R

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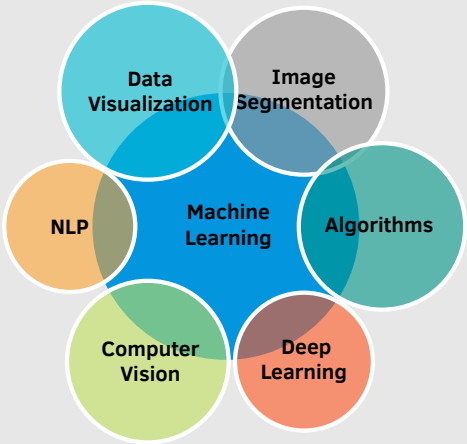

Programming

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OpenCV • MATLAB

Feb 2019 - Aug 2019 **Lecture Project** Data Analytics Lab@ETH Zürich
Natural Language Understanding

In a team of two:

- Implemented a simple LSTM Language model to perform various experiments.
- Implemented a system that can solve the Story Cloze task using RACE dataset as an alternate training source.
- **Tools**: Python, Tensorflow

Experience

Sep 2021 - Feb 2022 **Data Science Intern** Swiss Re, Switzerland
Advanced Analytics Services Department

- Developed and tested a toolkit of machine learning-related utils, and deployed them at scale on the internal platform
- Implemented a claims triaging model leveraging machine learning and unsupervised learnings algorithms
- Innovating on the topic of fairness in AI, by implementing and testing machine learning algorithms enabling discrimination-free regression

Apr 2016 - Oct 2017 **Student Researcher** Osram GmbH, Germany
Person Detection Project, Computer Vision R&D

- Research and development of cross platform GUI using WxPython.
- Translation of MATLAB code into C++.
- Research and creation of standalone executable for the project using PyInstaller. Helped in performance benchmarking of different prototypes.

June 2013 - Jun 2015 **Software Development Engineer** Samsung R&D Institute Noida, India
Projects: Samsung Android Smartphones and Tabs on Android versions Jelly Bean, Jelly Bean Plus, Kitkat and Lollipop

- Enhancement and porting of File System (FAT, EXFAT, FUSE, SDCARDFS, EXT4) on Samsung mobile's proprietary platform.
- Development of file system API's (Read, Write, Mount, Unmount, Unlink, Copy, Seek etc.).
- Creation and updating of Partition Information table in mobile phones. Modification of memory map according to the memory requirements of the system.

Publication & Technical Reports

Sep 2022 Flood Uncertainty Estimation Using Deep Ensembles at *Water* Journal.

Jul 2020 Water level prediction from social media images with a multi-task ranking approach at ISPRS Journal of Photogrammetry and Remote Sensing.

Jun 2019 Best paper award at Semantics3D workshop of ISPRS Geospatial Week

Mar 2019 Flood-Water Level Estimation from Social Media Images

Aug 2018 Master Thesis: Floodwater-estimation through semantic image interpretation

Languages

English (C2) ●●●●●

German (A2) ●●○○○