Priyanka Chaudhary

PhD Student

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/in/pchaudha/

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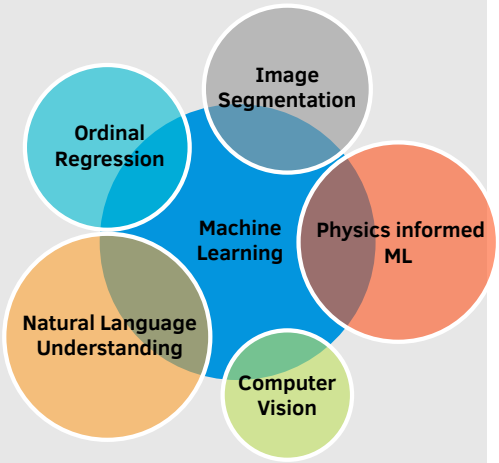
Technical Skills

Research Experience and Interests



Programming

Python • Tensorflow • Pytorch

C • C++ • Keras

OpenCV • MATLAB

Java • Javascript

Education

Nov 2018 - Present — **PhD Student/ Scientific Assistant** — ETH Zürich
Computer Vision and Machine Learning

Oct 2015 - Sep 2018 — **MSc. Informatics** — Technical University of Munich
Degree completed - 1.5

Aug 2009 - May 2013 — **BTech. Software Engineering** — Delhi Technological University
Avg. - 75.48, First Division with Distinction

Research

Nov 2018 - Present — **PhD Student** — ETH Zürich
Flood water level estimation from social media images

Work till now includes:

- In our recent work "Water level prediction from social media images with a multi-task ranking approach", we propose a multi-task (deep) learning approach, where a model is trained using both a regression and a pairwise ranking loss. Using the proposed approach, we demonstrate how to efficiently learn a predictor from a small set of annotated water levels and a larger set of weaker annotations that only indicate in which of two images the water level is higher, and are much easier to obtain. [Link]
- Extension of the work done in Master Thesis. The accepted paper in The ISPRS Annals of the Photogrammetry. [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 is to use images collected from social media of various flood events and use them to quantify the flood. In this thesis we use 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.
- Dataset collection, processing and annotation task. The processing of images details conversion to images to same format, detecting and removing duplicates from dataset, renaming all images for better handling.
- Implementation of pipeline to convert annotated images to JSON format for efficient storage and computation.
- Implementation of deep learning framework for Flood height prediction.
- **Tools**: Python, Keras, Tensorflow, Matplotlib

Apr 2017 - Sep 2017 — **Advanced Practical Course** — CAMPAR Group@TUM
Perception and Learning in Robotics and Augmented Reality

In a team of two:

- Familiarising with practical aspects of 3D perception tasks such as feature extraction, surface matching, object localisation and pose estimation.
- Learned to build up an end-to-end framework for the goal of object detection and pose estimation on the challenge dataset.
- **Tools**: Python, TensorFlow, OpenCV, Point Cloud Library

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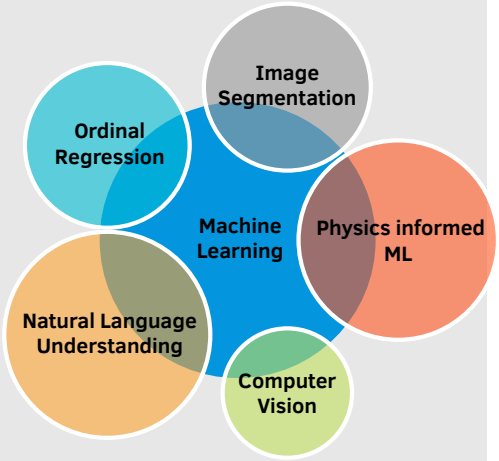

Programming

Python • Tensorflow • Pytorch

C • C++ • Keras

OpenCV • MATLAB

Java • Javascript

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

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

In a team of two:

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

Experience

Apr 2016 - Oct 2017 **Working Student** — 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.
- ECO tracker performance comparison with other trackers.

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.
- Code optimisation of file system operations for better performance while reading and writing of file.

Publication & Technical Reports

Jul 2020 Accepted paper: 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 the Semantics3D workshop of ISPRS Geospatial Week

Mar 2019 Accepted paper Flood-Water Level Estimation from Social Media Images

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