

PREET KHATURIA

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Experience

- **Software Developer - Machine Learning**
3LOQ, Hyderabad, September 2019 - Present
 - Working on 3LOQ's Habit Explorer digital banking intelligence tool as a backend developer.
- **Machine Learning Engineer**
Amnex Infotechnologies, Ahmedabad, August 2018 - August 2019
 - Developed a Plugin in QGIS for boundary delineation in Agricultural fields through satellite imagery.
 - Worked on road damage detection (potholes, cracks) for Highway surveillance using image segmentation (FCNs) and detection techniques.
 - Segmented roads from Indian Driving Dataset (IDD) using Fully convolutional Networks. (<https://github.com/preetkhaturia/>)
 - Participated in MoveHack 2018, organised by NITI Aayog and provided solution based on the state of the art deep learning algorithm namely, Mask RCNN to detect anomalies present on Indian roads.
 - Optimized bus routes for Navi Mumbai Municipal Transport (NMMT) system using Travelling salesman algorithm.
- **Programmer Analyst Trainee**
Cognizant, Pune, November 2014 - September 2015
 - Trained on Advanced Java and SQL.

Education

- **Master of Technology in Electrical Engineering** CPI:8.25/10.0
IIT Gandhinagar, Gandhinagar, August 2018
- **Bachelor of Engineering in Electronics and Communication** CPI:7.74/10
College of Technology and Engineering, Udaipur, July 2014
- **Senior secondary, CBSE Board** 87.2%
St Gregorios Sr Sec School, Udaipur, July 2010
- **Secondary, CBSE Board** 86.4%
St Mary's Convent Sr Sec School, Udaipur, July 2008

Publications

- **"Cell-Phone Identification from Recompressed Audio Recordings"**, Verma Vinay; Khaturia, Preet; Khanna, Nitin, National Conference on Communications (NCC)-2018.
 - The objective is to utilize passive signatures associated with the recording devices, as extracted from recorded audio itself, in the absence of any extrinsic security mechanism such as digital watermarking, to identify the source cell-phone of recorded audio.

Projects

- **Study of lunar Geomorphological and impact cratering processes through Chandrayaan-1 Datasets (Thesis Project)** May 2017- June 2018
(MATLAB, Python, ArcGIS)
Advisor: Dr. Nitin Khanna, Asst. Professor, IIT Gandhinagar
 - Detected craters based on contour mapping and shadow/bright region algorithm on Digital Elevation Models (DEMs) and classified craters based on morphology characteristics of craters and cross-sectional profiles.
 - Proposed a method to automatically detect impact craters on the surface of the Moon by using object detection framework inspired by R-CNN (region proposal) network.
 - Generated region proposals from ortho images, DEM and slope images using a graph-based segmentation method to limit the search space for a candidate region.
 - Features are extracted corresponding to each region proposal using 2-D Convolutional Neural Networks (CNN), following VGGNet architecture.
 - Proposed a post-processing algorithm to eliminate overlapped boxes detected as objects and to optimize the boxes based on its probability score.
- **Multiple JPEG compression detection (Minor Project)** Sept 2017- May 2018
 - Study of Benford's Law and its applications in image and video forensics.
 - Generated features from JPEG compressed image using Benford's (first digit) law.
 - Detected the number of JPEG compressions performed on an image using Benford's first digit law.
- **River Morphology Analysis-A case study on Yamuna River (Minor Project)** Dec 2017- Feb 2018
 - Worked on analyzing changing river planforms (aerial views). Given a binary image of river our algorithm is able to find the centerline, bank lines, sinuosity, bar-area, Channel width.

Technical Skills

- **Programming Languages:** C, MATLAB, Python, Basic VHDL, Scala.
- **Relevant Courses:** Machine Learning (MOOC), **Deep Learning Nanodegree(DLND) from Udacity**, **Self Driving Nanodegree (SDND- Part1)**, Artificial Neural Network (ANN), Advanced Digital Signal Processing, Image Processing, Industrial

- Internet of Things (short course), Multimedia Security, 3D Computer Vision, Advanced Numerical Methods in Engineering.
- **Machine Learning Packages:** Tensorflow, Pytorch, Keras.
- **Softwares:** ArcGIS, QGIS, \LaTeX .

Positions of Responsibility

Teaching Assistant

- *IIT Gandhinagar, Gandhinagar* *July 2016- June 2018*
 - Digital Image Processing (EE 605), Electrical Systems Lab (ES431), Measure Theory (MA 505), Introduction to Analog and Digital Electronics (ES 104).

Translator and Cultural Facilitator

- *MeToWe, Free The Children* *July 2014-Oct 2014*
 - Worked as a Translator and Cultural Facilitator for MeToWe, a for profit organization based in Toronto, Canada for social trips in India.

Achievements

- Secured 99% percentile in Graduate Aptitude Test in Engineering (GATE-2016).
- Felicitated by the IndusInd foundation for distinction in Bachelor's and Master's degree.