Rishav

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Education

2016-2020 **Birla Institute of Technology and Science (BITS Pilani)**, *Pilani, India*.
Bachelor of Engineering (Honors) in Computer Science
Minor concentration in Sociology & Climate Change

2014-2016 **All India Senior School Certificate Examination**, *New Delhi, India*.
CBSE Class 12 | Physics, Mathematics, Chemistry, English, CS

2013-2014 **All India Secondary School Examination**, *New Delhi, India*.
CBSE Class 10

Publications

2020 **IEEE International Conference on Pattern Recognition (ICPR-2021)**, *Milan, Itlay*.
Rishav*, René Schuster*, Ramy Battrawy, Oliver Wasenmüller and Didier Stricker, "ResFPN: Residual Skip Connections in Multi-Resolution Feature Pyramid Networks for Accurate Dense Pixel Matching"

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS-2020), *Las Vegas, NV, USA*.
Rishav*, Ramy Battrawy* ,René Schuster, Oliver Wasenmüller and Didier Stricker, "DeepLiDARFlow: A Deep Learning Architecture For Scene Flow Estimation Using Monocular Camera and Sparse LiDAR"

Experience

May'20 - July'20 **Chloropy Technologies**, *Singapore*.
Research Intern | *Tensorflow*
- Working on unsupervised deep learning algorithms for monocular depth estimation using drone images for estimating plant height.

Jun'19 - Dec'19 **Augmented Vision, DFKI**, *Kaiserslautern, Germany*.
Research Intern with **Prof. Dr. Didier Stricker** | *Tensorflow, PyTorch*
- Worked on deep learning for scene flow estimation in autonomous vehicles for my bachelor thesis.
- Developed a novel deep learning architecture for end-to-end prediction of scene flow using monocular images and sparse LiDAR measurements.
- Developed a novel design element which improved results for all dense matching tasks

Apr'18 - Aug'18 **Pixxel**, *Bengaluru, India*.
Machine Learning Engineer | *Tensorflow, BigQuery*
- Worked on Deep Learning for cleaning and extraction of useful bands in hyperspectral images, used google BigQuery for accessing LANDSAT data.
- Implemented HSID-CNN in tensorflow for denoising hyperspectral images.

Aug'18 - Dec'18 **Central Electronics Engineering Research Institute**, *Pilani, India*.
Research Assistant | *Keras, Tensorflow*
- Worked on Semantic Segmentation of Power-lines in images captured via drone & unsupervised machine learning algorithms for structural health monitoring.
- Integrated a new backbone into segmentation models for semantic segmentation **[code]**
- Implemented auto-regressive model for feature extraction and several unsupervised algorithms like one-class SVM for final classification. **[code]**

Coursework

Computer Science Data Structures and Algorithms, Design and Analysis of Algorithms, Operating Systems, Database Management, Neural Networks and Fuzzy Logic, Computer Networks, Machine Learning, Compiler Construction, Object Oriented Programming, Pattern Recognition

Mathematics Linear Algebra, Probability and Statistics, Differential and Integral Calculus

Software Skills

Languages Python, Java , C, C++

Framework Tensorflow, PyTorch, Keras

Academic Projects

Jan'20-Present **Visual Commonsense Reasoning**.
Will be working under *Dr. Surekha Bhanot, HoD, Electronics Engineering* on deep learning for visual commonsense reasoning. *Tensorflow*

Jan'19-May'19 **Compiler Construction**.
Constructed a compiler for a given language specification in C language, this included the development of lexer, parser, semantic-analyzer, code-generator

Apr'18 **Human Action Recognition**.
Implemented 3-D CNN architecture for human action recognition. Trained and tested the model on KTH dataset | *Keras*

May'20 **Active Learning**.
Implemented active learning algorithms on MNIST, tested various techniques like Query by committee & uncertainty sampling, also tested cluster based testing technique where whole dataset was labelled on the basis of just 10% of points. | *Python* **[code]**

Teaching

Jan'20-May'20 **Head TA, Neural Networks**.
Head TA for the course BITS F312 Neural Networks, guided a team of 10 TAs and assisted Prof. Surekha Bhanot for designing assignments and course projects for a class of 150 students.

Positions

Jan'17-Present **Senior Member, BITS-ACM**.
Member of the student chapter of ACM at BITS Pilani. Regular contributor to the machine learning special interest group.

Aug'17-Aug'18 **Team Leader, Nirmaan Organisation**.
Leaded the social project Gyanbodh Harinagar for the stated time, introduced the concept of Activity Based Learning to Kids of the community.

Achievements

May'2016 **All India Secondary School Exam**.
Awarded certificate of excellence by Govt. of India for scoring 99.0/100.0 in Mathematics.

Apr'2016 **BITS Admission Test**.
Obtained a score of 390/450 in BITSAT, test for admission to BITS Pilani.

May'2016 **Joint Entrance Examination (Main), CBSE, Govt. of India**.
Obtained an all India percentile of 99.90 out of 1.2 million candidates.

May'2014 **National Talent Search Exam, Govt. of India**.
One amongst 4,000 people selected for the scholarship out of 0.5 million candidates.

References

Available on request.