

HIRESH GUPTA

Software Development Engineer-II, Adobe Systems

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EDUCATION

Birla Institute of Technology and Science, Pilani

Jul'14 - May'18

B.E. (Hons) in Computer Science Engineering

CGPA: **9.05** (Passed with Distinction)

DAV Public School, New Shimla

2014

All India Senior School Certificate Examination, Percentage: **97.4** %

PUBLICATIONS

Form2Seq : A Framework for Higher-Order Form Structure Extraction

Milan Aggarwal, Mausoom Sarkar, **Hires h Gupta**, Balaji Krishnamurthy

Under Review at Annual Conference of the Association for Computational Linguistics (ACL 2020)

Document Structure Extraction for Forms using High Resolution Semantic Segmentation

Mausoom Sarkar, Milan Aggarwal, Arneh Jain, **Hires h Gupta**, Balaji Krishnamurthy

Under Review at IEEE Computer Vision and Pattern Recognition (CVPR 2020) [[pdf](#)]

Multi-Modal Elements Association Approach for Form Structure Extraction

Milan Aggarwal, Mausoom Sarkar, **Hires h Gupta**, Balaji Krishnamurthy

Accepted at IEEE Winter Conference on Applications of Computer Vision (WACV 2020)

Powering Robust Fashion Retrieval With Information Rich Feature Embeddings

Ayush Chopra*, Abhishek Sinha*, **Hires h Gupta***, Mausoom Sarkar*, Balaji Krishnamurthy

Accepted at IEEE Computer Vision and Pattern Recognition Workshop (CVPR 2019) [**Best Paper Award**, Oral, [pdf](#), [slides](#), [poster](#)]

PATENTS

A real-world grounded metric to measure the total quality of Form structure extraction
(*In filing*)

Improving Performance of Neural Networks using Learned Specialized Transformation Functions
US 16/534,856. (Filed)

Identifying Digital Attributes from Multiple Attribute Groups Within Target Digital Images Utilizing Deep Cognitive Attribution
US 16/564,831. (Filed)

Methods for Exploring and Recommending Matching Products Across Categories
US 16/417,373. (Filed)

Digital Image Search Training using Aggregated Digital Images
US 16/177,243. (Filed)

WORK EXPERIENCE

Adobe Systems, India

Jul'18 - Present

Software Development Engineer-II

Adobe Experience Cloud

- Designed multiple neural network architectures to extract the hierarchical document structure by performing semantic segmentation on document form images.
- Focused on customer-oriented research to make print documents re-flowable by deploying several deep learning models in [AI Powered Automated Forms Conversion Service](#).

Media and Data Science Research Lab, Adobe Inc

Jan'18 - Jul'18

*Computer Vision Research Intern**Advisor: Balaji Krishnamurthy*

- Worked on a deep learning based Visual Product Search which segments different products in a wild image and performs search in a large catalogue.
- Proposed a novel grid based training of siamese networks, allowing it to observe multiple positive and negative image instances simultaneously. The [research](#) was awarded the [Best Paper Award](#) at CVPR 2019 Workshop on Fashion and Subjective Search.

Samsung Research Institute, Noida

May'17 - Jul'17

*Software Development Intern**Advisor: Moolchand Tyagi*

- Contributed for development of a new Bluetooth Low Energy Profile on Air Toxicity, to create a standard platform for all air quality sensing devices.

Indian Institute of Remote Sensing, ISRO

May'17 - Jul'17

*Research Intern**Advisor: Vinay Kumar*

- Worked on the Development of Data Cube for Uttarakhand Region, to store and retrieve large Earth Observation datasets in an efficient manner.
- Conducted extensive research on different compression techniques and data storage formats for efficient query, retrieval and storage of data.

TEACHING EXPERIENCE

Teaching Assistant - Computer Programming Course

Jan'17 - May'17

*Assisted Prof. Vishal Gupta to conduct lab sections, exams and lectures for first year students.***Research Assistant - Web Intelligence & Social Computing Laboratory**

Jul'17 - Dec'17

*Assisted Prof. Poonam Goyal in conducting research on Text Generation for Images.***MAJOR ACADEMIC PROJECTS**

Image Super Resolution using deep Convolutional Neural Networks

Aug' 16 - Nov'16

Guide: [Prof. Surekha Bhanot](#)

- Implemented a deep CNN from scratch to generate a higher quality/detailed version of the low-quality input image.
- The model outperformed the traditional heuristic based approaches on Timofte benchmark. The research was also presented in a paper at APOGEE 2017, BITS Pilani.

Automated Image Captioning using Multimodal Recurrent Nets

Jan'17 - Jul'18

Guide: [Prof. Poonam Goyal](#)

- Designed an end to end model for generating sentence long descriptions of an input scene, using CNNs to extract image features and RNNs to decode them into natural language.
- Used Beam Search, Scheduled Sampling and Caption re-ranking strategies to improve the caption quality.

Water Quality Analysis using Machine Learning Techniques

Jul'17 - Dec'17

Guide: [Dr. JI Raheja](#)

- Applied statistical analysis and machine learning techniques to monitor water quality from different water sources in India.

TECHNICAL STRENGTHS

Programming Language	Python, Java, Scala, C/C++
Machine Learning Libraries	TensorFlow, Pytorch, Keras, Caffe, NumPy, OpenCV, scikit-learn
Softwares/IDE	PyCharm, IntelliJ, Microsoft VS Code, Adobe Photoshop
Others	Git, LaTeX

ACHIEVEMENTS AND AWARDS

Best Paper Award - CVPR 2019 Workshop

Won the best paper award at ([FFSS-USAD](#)) held at CVPR 2019.

Early Promotion - Adobe

Promoted to Software Engineer-II within 9 months of joining Adobe.

Institute Merit Scholarship - BITS Pilani

Recipient of Institute Merit Scholarship, offered to top 2 % students in the university.

All India Rank - 117 JEE (Joint Entrance Examination) - Mains

Secured an All-India-Rank of 117 out of 10 lakh candidates (99.98 percentile).

POSITIONS OF RESPONSIBILITY

President - Renewable Energy Club

Responsible for the club activities and events in the cultural and technical fests.

Publicity Head - Coding Club

Responsible for conducting club events and managing the publicity work throughout the year.

SELECTED COURSEWORK

Mathematics: Multivariable Calculus, Linear Algebra, Probability Statistics, Differential Equations.

Data Sciences: Machine Learning, Neural Networks, Information Retrieval, Cognitive Computing.

Software Engineering: OOP, OS, Data Structure & Algorithms, Database Systems.