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, **Hiresh 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, **Hiresh 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, **Hiresh Gupta**, Balaji Krishnamurthy
Accepted at IEEE Winter Conference on Applications of Computer Vision (WACV 2020)[pdf]

Powering Robust Fashion Retrieval With Information Rich Feature Embeddings
Ayush Chopra*, Abhishek Sinha*, **Hiresh 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)*

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.

BITS Pilani Jan'17 - Jul'17
Teaching and Research Assistant

- **Teaching Assistant - Computer Programming**: Assisted Prof. Vishal Gupta in conducting lab sections, exams and lectures for first year students.
- **Research Assistant - Prof. Poonam Goyal**: Conducted research on Text Generation for Images at Web Intelligence & Social Computing Laboratory, BITS Pilani.

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'16 - Jul'16
Research Intern *Advisor: Vinay Kumar*

- Worked on the Development of Data Cube for Uttrakhand Region in India, 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.

MAJOR ACADEMIC PROJECTS

Automated Image Captioning using Multimodal Recurrent Nets Jul'17 - Jun'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. JL Raheja

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

Image Super Resolution using deep Convolutional Neural Networks Aug' 16 - Dec'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, BITS Pilani.

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 Development 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 club activities throughout the year, and club events in the cultural and technical fests. Organized Green Week in BITS campus to spread awareness through various events and drives.

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.

MOOC: Stanfords CS231n: CNNs for Visual Recognition; deeplearning.ai specialization (Certificate).