Hiresh Gupta

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Seeking summer internships in Computer Vision for Summer 2022

Education

Carnegie Mellon University - School of Computer Science — Pittsburgh, PA
Master of Science in Computer Vision, Robotics Institute — *Dec. 2022*

Birla Institute of Technology and Science, Pilani — Pilani, India
Bachelor of Engineering (Hons.) in Computer Science — *May 2018*
CGPA: 9.05/10 (passed with distinction); Merit Scholarship (awarded to 3% students)

Experience

Adobe Systems — Noida, India
Software Development Engineer-II — *Jun. 2019 - Aug. 2021*
Software Development Engineer-I — *Jul. 2018 - Jun. 2019*

- Designed multiple network architectures to digitize print forms by extracting the hierarchical document structure.
- Proposed a high-resolution segmentation method to extract the form structure to up to four levels of granularity.
- Developed a service to directly transform print forms to responsive HTMLs for better viewing experience across devices.
- Utilised conditional GANs to generate synthetic training data corresponding to certain complex layout patterns.
- Scaled deep-learning workloads to TPU pods to achieve a 15x speedup in throughput and a 10x speedup in training time.
- Designed multi-modal solutions to leverage spatial and textual information in documents to further improve the form structure extractor accuracy by 5%; deployed model to production; patent filing in progress.

Media and Data Science Research Lab, Adobe — Noida, India
Computer Vision Research Intern — *Jan. 2018 - Jul. 2018*

- Created a deep learning based Visual Search product for fashion apparel & accessories, which accepts images, segments them, and then performs search in a large catalogue.
- Proposed a novel grid-based training for 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.
- Presented a live demo to an audience of 500+ people at a tech fair event in Adobe Tech Summit, 2019.

Publications

Document Structure Extraction using High Resolution Hierarchical Semantic Segmentation — ECCV 2020
M. Sarkar, ***Hiresh Gupta****, M. Aggarwal*, A. Jain, B. Krishnamurthy* [PDF]

Multi-Modal Elements Association Approach for Form Structure Extraction — WACV 2020
M. Aggarwal, M. Sarkar, ***Hiresh Gupta****, B. Krishnamurthy* [PDF]

Form2Seq : A Framework for Higher-Order Form Structure Extraction — EMNLP 2020
M. Aggarwal, ***Hiresh Gupta****, M. Sarkar, B. Krishnamurthy* [PDF]

Powering Robust Fashion Retrieval With Information Rich Feature Embeddings — CVPRW 2019
Hiresh Gupta*, A. Chopra*, A. Sinha*, M. Sarkar*, B. Krishnamurthy* [PDF] [Poster] [Best Paper Award]

Patents

Digital Image Search Training using Aggregated Digital Images — US 16/177,243

Methods for Exploring and Recommending Matching Products Across Categories — US 16/417,373

Improving Performance of Neural Networks using Learned Specialized Transformation Functions — US 16/534,856

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

Skills

Languages: Python, C/C++, Java
Libraries: Pytorch, TensorFlow, Keras, OpenCV, Matplotlib, Pandas, Fastai, Streamlit, Omniboard, pdb, unittest
Tools & Software: Docker, Git, Linux, Pycharm, Notion, LaTeX, Adobe Photoshop, Jenkins, Jira