Divakar Verma

Applied AI engineer with 3 years of work experience

MSCS, Rutgers University, NJ

divakarverma96@gmail.com | www.divakar-verma.com | vdivakar | divakar-verma

Education

Rutgers University - New Brunswick — *New Jersey, US*

Masters Of Science in Computer Science — *Fall 2021 - 2023*

- Concentration in AI and Deep Learning

Birla Institute of Technology and Science, Pilani (BITS Pilani) — *Pilani Campus, India*

Bachelor Of Engineering (Honors), Computer Science – First Division — *July 2018*

- **University of Melbourne**, Melbourne, Australia – *Undergraduate Research Thesis - Fall 2017 – (Grade: 10/10)*

Central Board of Secondary Education — *Chandigarh, India*

Senior Secondary - SGGS Collegiate Public School – Percentage: 95.8 % — *May 2014*

- **Merit Certificate - outstanding academic performance, Mathematics**, 100/100 score – *Top 0.1 % of national candidates*

Skills

Deep Learning Frameworks Tensorflow, PyTorch

Languages Python, C, C++

Others Linux, Git, OpenCV, Numpy, Data Structures & Algorithms

Patent

ELECTRONIC DEVICE AND METHOD FOR CONTROLLING ELECTRONIC DEVICE [Link] — *Samsung Electronics*

Global patent — *2021*

- Novel way to capture Super Slow Motion in camera electronic devices using software based assisted trigger via motion identification maps of region of interest (ROI) frames. Joint inventor and contributor for super-slow motion project commercialization for mid-tier Samsung smartphones at SRI-B.

Work Experience

Flipkart — *Bangalore, India*

Applied ML engineer | SDE-2 — *Dec 2020 - July 2021*

- Part of Automated Speech Recognition (ASR) team. Worked on in-house speech recognition model for Hindi language.
- Deployed Decoder module of speech pipeline with extended capabilities into production.
- Took up custom Text-to-Speech (TTS) deep learning model for Hindi speech generation from text prompts.

Samsung R&D Institute Bangalore (SRI-B) — *Bangalore, India*

Senior Software Engineer, Vision Research & Intelligent Camera group — *June 2018 - Dec 2020*

- Used Computer Vision and Deep Learning to come up with the best solutions for smartphone camera imaging solutions.
- AI HDR: worked on deep learning based image enhancement for Samsung flagship smartphones.
- Deep Demosaicing: demosaicing is the process of interpolating missing color channel information in the raw data captured by the camera sensor. Achieved state-of-the-art quality using resnet-bottleneck deep learning model.
- Also worked on: Super-slow-motion, optimizing image processing algorithms for advanced selfie features.

Publication

Deep Demosaicing Using ResNet-Bottleneck Architecture [Preprint] [Paper]

First Author | Fourth IAPR Conference on Computer Vision & Image Processing (CVIP) — *2019*

- Proposed a deep learning model to minimize artefacts which appear while demosaicing raw camera sensor data to colored RGB image.
- The proposed method generalises across different datasets and generates superior quality images, both qualitatively and quantitatively.
- Achieved state-of-the-art PSNR value of 42.30 on the Kodak dataset.

Research Experience

University of Melbourne *Melbourne, Australia*

Research Assistant | Undergraduate Research Thesis under Prof. Simon Dennis *August 2017 - December 2017*

- Built a mathematical model of human memory for word prediction using the techniques of machine learning.
- Improved the efficiency of the Syntagmatic Paradigmatic model- a two-layered memory-based model- to scale on a corpora of 50M words.
- Achieved a perplexity value of 42 on a vocabulary size of 65K.

Central Electronics Engineering Research Institute (CEERI) *Pilani, India*

Research Assitant under Dr Santanu Chaudhury *January 2017 - May 2017*

- Trained a Haar-feature-based cascade classifier to detect players on the cricket field using OpenCV (Python).
- Built a multi-tracking framework to calculate the relative distance travelled by players along with their relative speeds in order to estimate their effort and analyse performance.

Teaching & Volunteer

Computer Programming Course (CS - F111) *BITS Pilani, Pilani, India*

Teaching Assistant under Dr. Manoj Kannan *January 2018 - May 2018*

- Undertook lab sessions and taught linux basics and programming concepts using C language to 50 students.
- Contributed in providing inputs for lesson plans, project ideas and creating lab assignments.

National Service Scheme (NSS) *BITS Pilani, Pilani, India*

Teacher and Mentor *August 2014 - May 2015*

- Tutored mathematics and science to underprivileged students of classes X-XII in bi-weekly sessions.
- Visited students' home to meet parents for counselling and encouraging the role of education in their children's life.

Awards & Achievements

- (2020) Global patent accepted: A novel technique and application of capturing slow motion based videos and images.
- (2019) Paper publication as the main author: 'Deep Demosaicing using ResNet-Bottleneck architecture'
- (2019) Software coding competency: Achieved professional-level coding competency across global Samsung R&D centers.
- (2018) Winner, ExxonMobil Hackathon: Developed novel system to identify images with rule-compliant signage for logo detection and geotagging, all with a simple web portal.
- (2014) Merit certificate in Mathematics: Top 0.1% of national candidates with 100/100 in Mathematics in the Senior Secondary board of India.

Extracurricular

BITS ACM - Association for Computing Machinery (ACM) Student Chapter *BITS Pilani, Pilani, India*

President | BITS-ACM *August 2017 - May 2018*

- Initiated and conducted the first-ever technological Symposium during the technical fest of the campus with speakers from all over India.
- Promoted female participation on the university campus in the field of computing.
- BITS-ACM was awarded as the best Outstanding Recruitment Program for 2017-18 globally.

Badminton

- Gold medal in Samsung Sports League - intra-corporate sports tournament, 2019. Represented my team for the singles matches.
- District level player. Represented high school and college hostel in several tournaments.