Aviral Agrawal

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EDUCATION

Carnegie Mellon University — Pittsburgh, PA
Master of Science in Computer Vision — Dec 2024
- **CGPA** : 4.22/4.0
- Fall 23 (TA) 07-300 : "Research and Innovation in Computer Science" — Aug 2023 – Dec 2023
- **Coursework** : Multi-Modal Machine Learning, Robot Learning, Advanced Computer Vision

Birla Institute of Technology and Science, Pilani — Pilani, India
Bachelor of Engineering in Computer Science | *Minor in Finance* — July 2020
- **CGPA : 9.18/10** (Graduated in *DISTINCTION Division)*
- **Coursework** : Machine Learning, Data mining, Data Structures and Algorithms, Object Oriented Programming, Operating System, Database systems, Compiler Construction, Computer Networks

PUBLICATIONS

Development of a Machine Learning Based Model for Damage Detection, Localization and Quantification to Extend Structure Life
Procedia CIRP, 98, 199-204 — Link — Mar, 2021
- The paper proposes the transformation of a physical structure's mechanical response features to visual features which are fed to a CNN network delivering upto 85% better prediction than the previous state-of-the-art

PATENTS

Samsung Research Institute Bangalore — Click patent numbers for status — Bengaluru, India
- Published - US20230281458A1 , WO2023167514A1
- RQ filed - 202241042992, 202241072050
- Provisional filing - 202241072649, 202241073249

EXPERIENCE (3+ YOE)

SAMSUNG RESEARCH INSTITUTE BANGALORE — Bengaluru, India
Senior Engineer (Computer Vision) — Jan 2021 - Jun 2023
- Owned the AI-based replacement of Video compression In-Loop filter, achieved 10% bd-rate gain
- Curated data using quantization range resultant artifacts based binning for model generalization
- Innovated a novel training strategy for a better performing smaller network than a conventional more complex network. Worked on device deployment feasibility by reducing model multiply-and-accumulation operations

ORACLE — Bengaluru, India
DevOps Engineer — Nov 2020 - Jan 2021
- Created and owned a FLASK-based web-service and the deployment as part of the OCI Exascale team
- Applied the Flask application for synchronous resource management for team-based shared resources

AMAZON — Bengaluru, India
Research Engineer Intern — Jan 2020 - Jul 2020
- Developed a Reverse Geocoding module using Named Entity Recognition, custom clustering tree, beam search, and reference data-based filtering to output an address. Model deployed in Amazon India marketplace
- Created an Address Classifier using a multi-branch CNN architecture resulting in 6% better prediction AU-ROC than previously used LSTM model. Model deployed in Amazon middle- east marketplace

SAMSUNG RESEARCH INSTITUTE BANGALORE — Bengaluru, India
Student Trainee — May 2019 - Jul 2019
- Researched methods to improve digital image zoom by leveraging a multi-focal lens array system feeding a custom-Unet model to fuse input images and produce a single image with better zoom legibility
- Achieved 1.5 dB Peak-Signal-to-Noise-Ratio (PSNR) improvements over baseline method

SKILLS

PyTorch, Python, Pytest, PySpark, C, C++, Flask, AWS

AWARDS & SCHOLARSHIPS

- **Samsung Star IP Award - Star Young Innovator** : Most IPs created within 1 year of joining — Apr 2023
- **Samsung Excellence Award** : Exceptional research to market and ecosystem building activities — Feb 2022
- **Bengalathon** : Felicitated by the WEST BENGAL GOVERNMENT for winning the hackathon — Dec 2019
- **Scholarship America** : Received scholarship (thrice) for holistically meritorious students — 2019, 18, 17
- **KVPY** : GOVERNMENT OF INDIA support to further nurture students with scientific thinking — 2015