AMAN AGARWAL

Deep Learning Researcher
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EDUCATION

SRM INSTITUTE OF SCIENCE AND TECHNOLOGY Chennai, India
Bachelors in Computer Science & Technology; **CGPA: 9.38/10** August 2020 – June 2024

PROFESSIONAL EXPERIENCE

UNIVERSITY OF ERLANGEN-NUREMBERG Bavaria, Germany
Research Intern, Factory of Automation for Production Systems October 2022 - Present

- Conducting research & developing a 6-DoF pose estimation model for metallic objects that functions without the use of fiducial markers, provides better accuracy than 50 nano-meters and better reliability in estimation.
- Automated the process of synthetic dataset creation by rendering state-of-the-art STL files with realistic effects to morph the testing environment, saving time and effort in dataset generation.
- Modified compilation files for several libraries pertaining to camera calibration, aiding various research tasks.
- Assisted graduate students by conducting research on methodologies revolving around 3D Reconstruction.

DEEP-IVY Remote- London, UK
Deep Learning Engineer June 2022 – August 2022

- Developed calculus based sub-modules for inter-framework conversions between different machine learning libraries, simplifying the process of transferring models and enhanced interoperability.
- Modified the compilation process for MxNet libraries on ARM-based MacOS systems, allowing for compatibility across all Apple systems and improving the accessibility of the library.

NOTABLE PROJECTS

Point-Cloud Generation via Smartphones May 2023

- Devised methodology to generate 3D Point clouds via Images captured on smartphones, providing a cost-effective and accessible solution for 3D modeling
- Optimized the existing methodologies of Structure-from-motion to enable better performance on images captured by smartphones, improving the accuracy and reliability of 3D reconstructions.
- Generated the intrinsic properties of smartphone lenses using Zhang's method of camera calibration.

Diffusion-models for Fast Detector (Ongoing) April 2023

- Developing a Variational Auto-encoder to learn channel-based representations from image data derived out of CERN's LHC HDLC files, improving the efficiency and accuracy of analysis of experimental data.
- Extracted ECAL & HCAL channels from Track Images, enabling analysis of high-energy physics data.

Loving Vincent February 2022

- Developed a Neural Style Transfer model to efficiently apply feature transformations on video frames, providing a method for creating visually appealing videos with artistic styles.
- Produced an automated system to perform feature transfers, resulting in an impression of moving paintings

COMMUNITY

NEXT TECH LAB Chennai, India
Board Member, Machine Learning & AI April 2022 - Present

- Led the most exclusive research lab in India and the only one to have won the International QS Award twice.
- Managed a team of 30+ researchers, overseeing their projects and ensuring their success.
- Oversaw the lab's research projects, which included over 25 machine learning projects and 15 other research projects, and executed over 20+ events and workshops, ranging from sessions to hackathons.

OTHERS

Languages: Python, C/C++, Bash, Zsh, CMake, JavaScript
Libraries & Frameworks: TensorFlow, PyTorch, OpenCV, JAX, MySQL, Scikit-learn, PyTorch-3D
Awards & Honors: Ranked 13 in National Creativity Olympiad (2019), Scholarship for Academic Excellence (2021), Selected for Amazon ML Summer School (2022)