Udit Jain

uditjainiitd@gmail.com | LinkedIn | +82-10-3101-3747

EDUCATION & INTERNSHIPS

Indian Institute of Technology Delhi (IIT-Delhi) Delhi, India
Bachelor of Technology in Computer Science and Engineering July 2020

- **Relevant Coursework**: Computer Vision, Computer Graphics, Digital Imaging, Artificial Intelligence, Machine Learning

Harvard University, School of Engineering and Applied Sciences Massachusetts, USA (Remote)
Research Intern, Visual Computing Group March 2020 - August 2020

- Enhanced deep learning in computer graphics by optimizing the PyRedner library for improved inverse rendering techniques and developing a Monte Carlo differentiable graphics simulation tool with GPU acceleration, advancing integration research.

Kyutech Institute of Technology Fukuoka, Japan
Research Intern, Brain and Human Intelligence Systems May 2018 - July 2018

- Developed an innovative elderly care solution, integrating deep learning and robotic systems using ROS to enable Baxter robot to assist in clothing identification, segregation, and dressing, enhancing quality of life for Japan's aging population.
- Engineered and implemented a custom hardware solution, including a specialized gripper and deep learning models for object detection and segmentation, Project featured at RoboMech 2018 and recognition on Japanese National Television.

PROFESSIONAL EXPERIENCE

Samsung Research Seoul, South Korea
Computer Vision Engineer, Next Generation Digital Appliances Research Division January 2023 - Current

- Developed and deployed a vision-based AI model for millions of Samsung's next-gen smart refrigerators using TensorFlow, PyTorch, and OpenCV, enhancing user experience by automating food identification and inventory management.
- Worked on Object detection, Instance Detection, Feature Matching, Classification , Temporal trajectory detection. Position detection, Gaze prediction, Human activity recognition, Label detection, transformation and matching.
- Addressed Out-Of-Distribution (OOD) detection issues and improved model accuracy by 4% through openset loss, contrastive loss, & ensemble methods, significantly reducing misclassifications and improving reliability in diverse conditions.
- Optimized AI model for NPU deployment, achieving performance metrics of under 40MB size, below 70ms latency, and over 90% accuracy, ensuring seamless integration into refrigerator systems without compromising on performance.
- *Samsung University (*April 2024) Served as a Crew Member in the Samsung 2024 Spring Global New Comers program, delivering engaging lectures and panel talks that facilitated learning and professional development among 32 international participants. Led intensive networking and team-building programs, across Samsung's global offices, SDS, DX, Cheil, E&A
- Currently making models for Samsung's Smart Refrigerator, Washing-machine, Wine-cellar, & Air-Dresser, Robot Cleaner.

Software Engineer, Data Service Lab January 2022 - January 2023

- Deployed the Samsung Health Research Application, facilitating participant life-log data analysis at Samsung Medical Center & other hospitals, designed end-to-end system architecture using Clean Architecture to enhance scalability and maintainability.
- Developed the client-side application with Kotlin and Android Framework for optimal user experience, and engineered the server-side infrastructure using NodeJS to ensure secure, efficient data handling and integration. Apache Superset for insights.

Data Science Engineer, Data Intelligence Lab. October 2020 - January 2022

- Conducted extensive data analysis on a 200 million user database within Samsung Health, modeling weight, BMI, sleep, exercise, and step habits to unveil critical health trends and behaviors using AWS EMR, Athena, Spark, and Glue. SQL
- Performed decryption, pipelining, and data analysis on 300TB of anonymized health data stored on AWS S3, analyzing trends by demographics and external factors like COVID-19, leading to insights into correlations & causal relations.

PUBLICATIONS

Queen Mary University of London London, UK (Remote)
Research Assistant September 2019 - October 2019

- Conducted a comprehensive research survey on the security and privacy of emerging technologies including IoT, blockchain, AI, and cloud computing, and published a paper that discusses transformative impacts and paradigm shifts. ArXiV link.

University of Melbourne Melbourne, Australia (Remote)
Research Assistant August 2018 - April 2019

- Developed the APEX File System with Java and FUSE to enhance data recoverability on Ext4 systems after cyber attacks, optimized with ML, tested on Raspberry Pi. IEEE International Conference on Cloud Computing. ArXiV link.

RELEVANT SKILLS

- **Programming Skills:** C, C++, Java, Kotlin, Python, Matlab, SQL, NodeJS
- **Frameworks and Libraries:** TensorFlow, Keras, TensorFlow Lite, PyTorch, NPU-toolkit (vsi-acuity), SK-learn, OpenCV, Apache Superset, NLTK, OpenGL, OpenCV, PyTorch, OpenMP, CUDA .
- **Database Management**: SQL, AWS Athena, Google BigQuery, Room DB
- **Cloud Computing**: AWS Cloud Deployment, S3, EMR, AWS Big Data Solutions
- **Software Architecture**: Clean Architecture Design Principles, Systems Design and Programming
- **Robotic Systems:** ROS, integration of AI with robotics
- Generative AI, Prompt Engineering, GANs, Deep Vision Networks, Quantization for on device deployment at scale