Sanjana Mishra

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Technical Skills

Programming Python, C, C++, React, PHP, HTML, CSS, JavaScript, C#, SQL, Java, NumPy, PyTorch, OpenCV.
OS, Dev Tools Windows, LINUX, GitHub, Visual Studio Code, Visual Studio, PyCharm.
Game Engines Unity, Unreal Engine.

Technical Experience

MeMeraki Retail and Tech Pvt. Ltd. — *Remote*

Technology Intern — *JUNE 2021- SEPTEMBER 2021*

- Designed and developed the company website using Liquid, HTML5, CSS3, JavaScript.
- Collaborated on the creation of a platform for organizing courses and included interactive front-end elements and modules like accordions through advanced JavaScript.
- Integrated features such as filters, chat, and rewards program through plugins to increase platform usability.

ICE Information Technology — *Dubai, UAE*

Intern — *MAY 2019- JUNE 2019*

- Developed an understanding of the processes of Vulnerability Assessment and Penetration Testing; familiarization with security devices, firewalls, IDS, IPS, SIEM.
- Researched and presented findings on the ISO 27000 and 27001 frameworks and standards.

Technical Projects

Dynamic visual data to stylized point cloud super resolution for synthesis of VR environments — *Burnaby, Canada*

SFU — *JAN 2023- Present*

- Generation of a dense, high resolution point cloud of a 3D scene though SFM and addition of finer details that can be converted into a mesh to import into game development engines and used as assets/game maps.
- Pipeline takes the input as the sparse low resolution point cloud (generated by SFM) and feeds it into a super resolution network (VAE) along with extracted features (representing finer details) from the initial video input and a style image to finally generate a stylized 3D environment.

Data Synthesis and Extraction using Nvidia Omniverse — *Burnaby, Canada*

SFU, OneCup AI — *OCT 2022- DEC 2022*

- Simulated a digital twin of an outdoor farmstead using UE5 and Omniverse to generate and extract trainable data.
- Used this synthetic dataset to train a YOLOv5 network for object detection.
- Analyzed the training results to conclude that the dataset must contain both synthetic and real-world data for best detection results and to avoid overfitting of the model to synthetic data.

Middle School Architect: Programmatic construction using 3D graphics platform in Elm — *Vellore, India*

VIT — *JAN 2022- MAY 2022*

- Developed a platform in Elm for the construction of buildings to teach young students about coding and mathematical concepts of 3D geometry through computer graphics, visual programming, and high-level mathematics.
- Designed the UI wireframe and prototype for the front-end of the webapp using Figma.
- Collaborated with faculty of McMaster University for the University's outreach program of teaching middle school students about computer programming.

COVID-SCAPE Crowd Detection using IoT — *Vellore, India*

VIT — *FEB 2021- JUNE 2021*

- Developed a Crowd detection (people counter) using Computer Vision (Python, Haar Cascade Features, NumPy, OpenCV) and IoT to identify overcrowded areas in real time.
- Formulated the design and overall workflow of the system and architecture through wireframes.
- Documented the results that indicate a high accuracy rate of counting people in a scene(image and video).

Cosmoteem — *Vellore, India*

VIT — *OCT 2020- JAN 2021*

- Developed an astronomy website with modules including a forum, news feed, a store, gallery, and a view of the Solar System using a tech stack of Handlebars, Express.JS, JavaScript, CSS3, HTML5, MongoDB and Unity3D.
- Coded the front-end of the website using Handlebars, JavaScript, CSS3, HTML5, and curated specific images and logos to make a visually appealing interface (cosmoteem.com).

Implementation of TSP in Drilling Holes in Printed Circuit Boards

Vellore, India

VIT

JAN 2019- APR 2019

- Implemented the application of TSP to a real-word issue whilst comparing and contrasting which between Branch and Bound and Ant Colony Optimization (ACO) is a more optimal algorithm for this problem in C++.
- Tested and analyzed results that indicated that the ACO algorithm is more efficient for this problem.

Research and Publication

Implementing Security in IoT systems via Blockchain

International Journal of Internet Technology and Secured Transactions

Published DEC 2022

- Proposed the integration of Blockchain into current cloud based IoT systems to improve security of the same after an analysis of the current security concerns in a weather detection system.
- https://www.inderscience.com/info/inarticle.php?artid=127391

Education

Simon Fraser University

Burnaby, Canada

MSc in Professional Computer Science (Spec. in Visual Computing)

SEPT 2022 - Current

- **Relevant Courses:** Practices in Visual Computing I and II, Machine Learning, Distributed and Cloud Systems.

Vellore Institute of Technology

Vellore, India

BTech in Computer Science and Engineering

JULY 2018 - JUNE 2022

- CGPA: 8.97
- **Relevant Courses:** Software Engineering, Internet and Web Programming, Parallel and Distributed Computing, Databases, ML, AI, HCI.