Swasti Shreya Mishra

swamishr@adobe.com linkedin.com/in/swastishreyamishra github.com/swastishreya

Education

International Institute Of Information Technology Bangalore **Bangalore, India**

*Integrated Master of Technology, **3.75/4** CGPA* *2017-2022*

- **B. Tech** in Computer Science Engineering with **M. Tech** specialization in Artificial Intelligence and Machine Learning

Peer-Reviewed Publications

SketchBuddy: Context-Aware Sketch Enrichment and Enhancement - DOI **June'23**

- Aishwarya Agarwal, Anuj Srivastava, Inderjeet Nair, **Swasti Shreya Mishra**, Vineeth Dorna, Sharmila Reddy Nangi, and Balaji Vasan Srinivasan. *In Proceedings of the 14th Conference on ACM Multimedia Systems*, pages 217–228, 2023

A Hybrid Rigid and Non-Rigid Motion Approximation for Generating Realistic Listening Behavior Videos - DOI **December'22**

- **Swasti Shreya Mishra**, Kumar Shubham, and Dinesh Babu Jayagopi. *In Proceedings of the Thirteenth Indian Conference on Computer Vision, Graphics and Image Processing*, pages 1–6, 2022

Firm Dynamics and Employee Performance Management in Duopoly Markets - DOI **December'21**

- Prateksha Udhayanan, **Swasti S Mishra**, and Shrisha Rao. *Physica A: Statistical Mechanics and Its Applications*, 583:126298, 2021

Experience

Adobe Research **Bangalore, India**

Research Associate *July'22-Present*

- Working in the Collaborative Creativity Team, where our research explorations broadly lie in computer vision and multimodal perception. Worked on content-aware layout generation for graphic designs. Building a text-to-video generation framework for generating cinemagraphs. Some of these works are currently under review.

Awl Japan **Japan**

Research Intern *January'22-April'22*

- Extensively analyzed multi-object tracking models and their evaluation metrics. Worked on adapting the SOTA model for a client use case.

University of Waterloo **Waterloo, Canada**

Mitacs Globalink Research Intern *August'21-October'21*

- Worked under the supervision of *Prof. Dr. Chul Min Yeum* [Link] on building-height estimation using Deep Learning for Flood Risk Analysis in CViSS Lab [Link]

Adobe Research **Bangalore, India**

Research Intern *May'21-August'21*

- Worked on context-aware sketch enrichment and enhancement using Deep Learning techniques. We explored sketch representation, contextual recommendation and salient region generation. Worked with various deep learning architectures like Transformers for the image domain, Variational AutoEncoders for image reconstruction, and U-Net for saliency-map generation for contextual placement.

BIOTEC, TU Dresden **Dresden, Germany**

Research Intern *May'20-July'20*

- Machine learning and database integration for network-based biological pathway enrichment analysis. This included implementing basic text mining-based approaches that search for lipid signatures and biological pathways in the published literature and populate a graph database. [Link to **LIPEA**]

Microsoft **Bangalore, India**

Software Engineering Intern *June'19-July'19*

- Automated the process of interview scheduling for organizations by developing a web and mobile app using React/React Native, Django frameworks and Azure Services (such as Notification Hub and SQL Server). Used Microsoft Graph APIs such as Outlook Calendar API and Teams API to personalize the app for users. Reduced the overhead costs of fetching data from the backend by changing the app's architecture. Made the app production-ready.

Notable Projects

Listening Behavior Video Generation - Thesis **Supervisor: Dr. Dinesh Babu Jayagopi**

- Models like the first-order motion model (FOMM) can transfer actor behaviour onto facial images, but they result in artefacts which make them unrealistic and hence, can't be utilised for real-world use cases (such as psychological studies, etc.). We proposed a hybrid model that combines first-order and zero-order motion, improving the output quality and preventing distortion, especially in non-rigid body motions.

Real Time Attire Classification - Github **Supervisor: Dr. Dinesh Babu Jayagopi**

- Object detection and attire classification on video dataset - Built a transfer learning-based model using YOLO for object detection and coupled it with a ResNet classifier for attire classification on humans.

Room Layout Estimation - Github **Supervisor: Dr. Dinesh Babu Jayagopi**

- Building a U-net based architectural model for the reconstruction of the enclosing structure of the indoor scene, consisting of walls, floor, and ceiling without making any assumption on the room structure, such as cuboid-shaped or Manhattan layouts. This model is to be trained on the Structred3D dataset.

Travel duration prediction for BMTC buses - Github **Supervisor: Dr. G. Srinivasaraghavan**

- Built a travel duration prediction model for Bangalore Metropolitan Transport Corporation (BMTC) buses. This involved cleaning up the raw data (15GB), exploratory data analysis and feature extraction. Experiments were conducted to find out the best-fitting machine learning model.

Building agent capable of playing text-based games - Github **Supervisor: Dr. G. Srinivasaraghavan**

- Built a reinforcement learning agent that can navigate and interact within a text environment, using language understanding, dealing with a combinatorial actions space, efficient exploration, memory, and sequential decision-making.

Building full stack application using DevOps methodology - Github **Supervisor: Dr. B. Thangaraju**

- Built an app, where the frontend was built using React and the backend was built using Django. Testing was done using PyTest. Continuous integration was done using Jenkins, containerization with Docker and DockerHub, continuous deployment using Ansible and continuous monitoring using the ELK stack.

Technical Skills

Languages Python, C/C++, JavaScript, Java, CypherQL, SQL
Python Libraries Pytorch, Numpy, Pandas, Scikit-learn, Scipy, Seaborn, Matplotlib
Others Jupyter, LaTeX, React/React Native, Git, Neo4j, HTML, CSS

Relevant Courses Completed

AI/ML - Artificial Intelligence, Visual Recognition, Natural Language Processing, Multi-Agent Systems, Machine Learning, Mathematics for Machine Learning
Computer Science - Data Visualization, Computer Graphics, Graph Theory, Software Production Engineering, Programming Languages, Operating Systems, Introduction to Automata Theory and Computability, Discrete Mathematics, Data Structures and Algorithms, Design and Analysis of Algorithms, Database Systems, Programming (Python, C, Java, C++), Software Engineering

Achievements

- **2022 -** Awarded **Late Sri. N. Rama Rao Medal for All-Rounder of the Year**, International Institute Of Information Technology, Bangalore
- **2017-2022 -** Awarded **Dean's Merit List**, International Institute Of Information Technology, Bangalore
- **2021 -** Awarded **Adobe Women in Technology Scholarship** (1 among 6 scholars in India)
- **2018 -** Qualified for **ACM-ICPC (Association for Computing Machinery - International Collegiate Programming Contest)**, India Regionals (Kharagpur and Amritapuri)
- **2018 -** Won **Google 'Build For India' Hackathon**, Google Bangalore, secured 1st position in the Android Track

Extra-curriculars

- **2023 -** Published a poetry book **"Dimensional Thoughts"**
- **2021 -** Took up Teaching Assistant-ship for the **Machine Learning** and **Visual Recognition** courses under Dr. Dinesh Babu Jayagopi [Link]
- **2021 -** Volunteered as a mentor for the **Women in Machine Learning & Data Science**, New Delhi Chapter
- **2018-2023 Dance Club IIIT Bangalore** founder and core team member