Sayan Deb Sarkar

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Academic Qualifications

- **ETH Zurich** Sept 2022 - May 2024 (expected)
  Zurich, Switzerland
  MSc. Computer Science, `Major : Visual Interactive Computing`
  Relevant Coursework : Computer Vision, Computer Graphics, 3D Vision, Shape Modeling & Geometry Processing

- **Manipal Institute of Technology** Aug 2016 - Jul 2020
  Manipal, India
  BTech. Information Technology; `CGPA: 9.16/10.00`
  Relevant Coursework : Data Structures, Design and Analysis of Algorithms, Social Network Analytics

Relevant Publications

[1.] **Sayan Deb Sarkar**, Ondrej Miksik, Marc Pollefeys, Daniel Bela Barath, Iro Armeni, **SGAligner : 3D Scene Alignment with Scene Graphs**, *ICCV, 2023* **[paper]** **[code]**
[2.] Shreyas Hampali, **Sayan Deb Sarkar**, Mahdi Rad, Vincent Lepetit, **Keypoint Transformer: Solving Joint Identification in Challenging Hands and Object Interactions for Accurate 3D Pose Estimation**, *CVPR, 2022* **[paper]** **[code]**
[3.] Sinisa Stekovic*, Shreyas Hampali*, **Sayan Deb Sarkar**, Chetan Srinivasa Kumar, Friedrich Fraundorfer, Vincent Lepetit, **Monte Carlo Scene Search For 3D Scene Understanding**, *CVPR, 2021* **[paper]** **[code]**
[4.] Sinisa Stekovic, Shreyas Hampali, Mahdi Rad, **Sayan Deb Sarkar**, Friedrich Fraundorfer, Vincent Lepetit, **General 3D Room Layout from a Single View by Render-And-Compare**, *ECCV, 2020* **[paper]** **[code]**

Research Experience

- **Student Researcher, Computer Vision and Geometry Group, ETH Zurich** Oct 2022 - Present
  Advisor : Prof. Dr. Iro Armeni and Prof. Dr. Marc Pollefeys **[Project Page]**
  - Proposed the **first method** for aligning pairs of 3D scene graphs in **static and dynamic environments**, robust to **in-the-wild scenarios**, inspired by multi-modality knowledge graphs and constrastive learning.
  - Leveraging and recycling scene graphs for creating 3D maps of environments, a pivotal step in **embodied agent operation** to showcase results in downstream tasks such as **map localisation and registration**.

- **Research Assistant, Institute of Computer Graphics and Vision, TU Graz** Jan 2020 - May 2021
  Advisor : Prof. Dr. Vincent Lepetit
  - Developed a robust automated method for joint optimisation of **3D hands+object poses** in RGB-D action sequences, and improved the annotation accuracy by over **33%**.
  - Explored problems on **3D Room Layout Estimation** and **Indoor Scene Understanding** using Monte Carlo Tree Search from noisy RGB-D scans, for perception understanding.

Industry Experience

- **Research Intern, Qualcomm XR Labs Europe** Jul 2023 - Jan 2024
  Amsterdam, Netherlands
  - Engaged in advancing state-of-the-art **visual SLAM systems** for next generation **Extended Reality** applications.
  - Collaborating with a team of researchers and engineers to optimise SLAM algorithms for real-time performance and integration of deep learning algorithms to allow for **improved tracking in adversarial scenarios**.

- **Computer Vision Research Engineer, Mercedes-Benz R & D India Pvt. Ltd.** May 2021 - April 2022
  Bangalore, India
  - Worked in the **Intelligent Interior Team** of MBUX Interior Assist programme for **Maybach S-Class** series, on safety critical applications.
  - Designed and implemented deep-learning based modeling for driver monitoring system like head position estimation and depth estimation from monocular RGB images in **Multi-Purpose Integrated Camera(MPIC)** systems.

Academic Services

- Organising Committee, **Workshop on Computer Vision In The Built Environment (CV4AEC)**, CVPR
- **Reviewer** CVPR, ICCV, ECCV

Extra-Curricular

- **Co-founder,** **CORD.ai**, led and recruited a core team of 14 to form a 350+ member community envisioned with democratizing AI and reducing barriers for passionate young independent researchers.
- **Technical Head,** **Defeat COVID**, a non-profit organisation, aimed at tracking the spread of COVID-19 using a mobile-based heat map interface.
- **Management Committee Member,** **IECSE Manipal**, official university Computer Science chapter, co-worked with a team of 80+ members to conduct technical workshops and events for benefits of the students.

Technical Skills

- **Programming Languages** Python, C++, Java, JavaScript
- **Tools/Frameworks** Tensorflow, Pytorch, OpenCV, D3.js, mySQL, Node.js, Django, mongoDB