Shahid Shabeer Malik

My Portfolio **LinkedIn** Computer Vision Engineer | AI/ML Engineer E-mail:malikshahid6769@gmail.com

SUMMARY

Computer Vision Engineer with expertise in real-time perception, 3D reconstruction, SfM/SLAM, depth estimation, calibration and multi-sensor fusion. Experienced in deep learning, transformer-based vision models, and simulation-driven validation using Unreal Engine and CARLA.

EDUCATION

- Master of Science in Computer Science, Saint Louis University, USA *Aug 2023-Dec 2025*
- Bachelor of Technology Computer Science and Engineering, Jamia Hamdard University, India *Sep 2020-May 2023*

WORK EXPERIENCE

Graduate Research Assistant (Computer Vision, AI/ML Engineer), SLUAIR Lab, Saint Louis University ***Sep 2023-July2025***

- Built real-time event-driven perception pipelines integrating event, RGB, and polarization sensors.
- Improved low-light 3D reconstruction using event cameras with rotating polarization optics.
- Developed satellite pose estimation pipelines using SfM, MVS, and Gaussian Splatting.
- Automated multi-sensor data acquisition with ROS and Arduino-based time synchronization.

Project Lead (Computer Vision), SLUAIR Lab, Saint Louis *University* ***Oct 2024-April 2025***

- Led a team of graduate students in developing a computer vision project, fusing event and RGB data for enhanced feature tracking using Neural Networks.
- Performed multiple sensor setup, data acquisition using real sensors and also simulated data in Carla and Unreal.

Tech Lead, Open Source SLU, Saint Louis University ***Aug 2025- Dec 2025***

- Built large-scale 3D scene reconstructions using drone imagery, SfM/SLAM, and Gaussian Splatting.
- Developed interactive Three.js/WebGL visualization for real-time exploration and analysis.

KEY PROJECTS

Satellite Pose Estimation & 3D Reconstruction using Event Cameras ***Jan 2024 – Dec 2024***

- Led research on satellite pose estimation using event cameras under challenging space lighting conditions.
- Developed a novel SfM pipeline integrating MVS and Gaussian Splatting for dense 3D reconstruction.
- Evaluated event-based reconstruction using E2VID, FireNet, ETNet, and HyperE2VID, demonstrating improved robustness over RGB methods.

LW-DETR – Transformer-Based Object Detection ***Aug 2025 – Dec 2025***

- Fine-tuned LW-DETR (transformer-based object detector) on a custom SLU campus dataset with tailored data preprocessing and hyperparameter tuning.
- Implemented a complete training and evaluation pipeline, delivering state-of-the-art detection and classification results within the cohort.

Project Montis – 3D Digital Twin ***Sep 2025 – Dec 2025***

- Built a high-resolution 3D digital twin from drone imagery using photogrammetry, SfM, SLAM, and Gaussian Splatting, generating mesh and point-cloud representations at scale.
- Developed interactive WebGL visualizations with Three.js, enabling real-time rendering, dynamic updates, and LLM-powered geospatial querying for spatial analysis and path planning.

PUBLICATIONS

- **Shahid Shabeer Malik** et. al. *"EvSat3D: Satellite Pose Estimation and 3D Reconstruction with Event Camera."* IEEE Access .
- **Shahid Shabeer Malik**, Aneeque Khan, "*Anxiety, Depression and Stress prediction among college students using Machine Learning Algorithms*" IEEE Xplore.

TECHNICAL SKILLS Skills: Programming : Python, JavaScript, C++, SQL, PHP, HTML/CSS · **Computer Vision & ML:** PyTorch, TensorFlow, Keras, OpenCV, NumPy, SciPy, Open3D · **3D & Simulation:** Three.js, WebGL, Blender (Python API), Unreal Engine, CARLA, ROS/ROS2