Shahid Shabeer Malik

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

SUMMARY

Computer Vision Engineer specializing in real-time perception for robotics and autonomous systems, with experience in 3D reconstruction, SfM, and SLAM in dynamic and low-light environments. Skilled in deep learning and transformer-based vision models, and multi-sensor fusion using event cameras, RGB cameras, IMUs, and polarization sensors to build robust, high-performance perception systems.

EDUCATION

- Master of Science in Computer Science, Saint Louis University, St. Louis, Missouri, USA *Aug 2023-Dec 2025*
- Bachelor of Technology Computer Science and Engineering, Jamia Hamdard University, India *Sep 2020-May 2023*
- Diploma in Computer Engineering, Jamia Millia Islamia University, New Delhi, India *Sep 2017-May2020*

WORK EXPERIENCE

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

- Developed real-time event-driven vision solutions for autonomous systems, integrating event data with RGB and polarization sensors.
- Enhanced 3D reconstruction in low-light using event cameras and rotating polarization lenses.
- Engineered a pipeline for satellite pose estimation using SfM, MVS, and Gaussian Splatting.
- Developed RNN models for events to frame reconstruction on real event data.
- Automated multiple vision sensors data acquisition using ROS, programmed Arduino with ROS too for time synchronized data gathering.

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

- Led a team in developing a computer vision project, fusing event and RGB data for enhanced feature tracking using Neural Networks.
- Managed and led my project team, conducted regular meetings, guided model design, optimized performance, and ensured timely project delivery.
- Performed multiple sensor setup, data acquisition using real sensors and also simulated data in Carla and Unreal.

Teaching Assistant, Saint Louis University ***Aug 2023- May 2024***

- Assisted in Deep Learning and Applied Machine Learning courses by mentoring students, supporting neural network projects, and helping debug code.

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

- Leading development of full-stack, open-source software projects using React, Flask, Python, and Docker.
- Spearheading Project Montis, a 3D mountain visualization platform integrating Gaussian Splatting and route analytics.

Summer Intern, Evision Technoserve, Noida, India ***May 2021-July 2021***

Worked with AWS Cloud: storage, scaling, deployment, and web app deployment using Auto Scaling and Load Balancer.

KEY PROJECTS

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

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

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

- Fine-tuned LW-DETR (transformer-based detector) on a custom SLU campus dataset.
- Built the full training, evaluation, and benchmarking pipeline, achieving top detection and classification performance among all project teams.

Project Montis – 3D Digital Twin for Geospatial Intelligence ***Sep 2025 – Dec 2025***

- Developed a high-resolution 3D digital twin framework using drone imagery, photogrammetry, SfM, SLAM, and Gaussian Splatting.
- Implemented dynamic update pipelines and LLM-powered geospatial querying for real-time spatial analysis, accessibility mapping, and path planning.

Flower Petal Count Prediction using CNNs ***Sep 2023 – Nov 2023***

- Designed a regression pipeline using pretrained CNNs (ResNet50, VGGNet) to predict flower petal counts from RGB images.
- Achieved best performance with ResNet50, using custom regression heads and annotated petal-tip supervision.

PUBLICATIONS

- **Shahid Shabeer Malik**, Maryam Moshrefizadeh, Omar Tahri, Xiaoli Bai, Erik Blasch, Vasit Sagan, Hadi AliAkbarpour. *"EvSat3D: Satellite Pose Estimation and 3D Reconstruction with Event Camera."* IEEE Access .
- **S.S. Malik**, A. Khan, Dr. Sapna Jain, "*Roomate4U- An online platform that provides accommodation facilities to college students*". I presented this research paper in the International Conference on ICT for sustainable development in Goa, India. It is published in the book series "ICT Systems and Sustainability" of Springer Nature.
- **Shahid Shabeer Malik**, "*Skin Lesion Segmentation using Active Contour, Otsu's Thresholding and K-Means Clustering: A comparative Analysis"* (Conditionally accepted for publication in IEEE Xplore).
- **Shahid Shabeer Malik**, Aneeque Khan, "*Anxiety, Depression and Stress prediction among college students using Machine Learning Algorithms"* IEEE Xplore.

TECHNICAL SKILLS

- **Languages:** Python, JavaScript, C++, PHP, HTML5, CSS3, SQL
- **Frontend:** React, Bootstrap, JavaScript, HTML/CSS
- **Backend:** Flask, Django, Node.js, Express
- **Databases:** MySQL, PostgreSQL, SQLite
- **DevOps/Tools:** Git, GitHub, Docker, Kubernetes, AWS, CI/CD
- **Frameworks/Libraries:** TensorFlow, PyTorch, Keras, OpenCV, Hibernate (JPA), Spring Boot,
- **Other:** REST APIs, Agile/Scrum ,ROS, ROS2, Unreal Engine.

AWARDS & SCHOLARSHIPS

- **Fully Funded Scholarship** ***Aug 2023-May 2024***
  Awarded full tuition and funding by the Department of Computer Science, Saint Louis University for academic excellence.
- **Fully Funded Research Assistantship** ***June 2024-May 2025***
  Received full funding through a Graduate Research Assistantship to contribute to research in AI, computer vision and robotics at SLUAIR Lab
- **Fully Funded Scholarship** ***June 2025-Dec 2025***
  Re-awarded full tuition support by the Department of Computer Science for continued academic and research achievement.
- Best creative presentation award in Principles of Software Development Course in Saint Louis University