Hamid Syed

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EDUCATION

Auburn University – (Alabama, USA) *May 2026*
Ph.D. in Biosystems Engineering *GPA: 4.0/4.0*

Air University Islamabad (Islamabad, Pakistan) *December 2022*
Master of Science in Electrical Engineering *GPA: 3.52/4.0*

University of Engineering & Technology Peshawar (Peshawar, Pakistan) *October 2020*
Bachelor of Science in Electrical Engineering *GPA: 3.62/4.0*

ACADEMIC EXPERIENCE

Graduate Research Assistant – Biosystems Engineering *May 2023 – Present*

- Researching AI integration in Agriculture for Inventory Management
- Developing dynamic unmanned ground vehicle (UGV) for spraying
- Creating Drone based weed detection system
- Designing UAV and UGV based optimized spraying system

Graduate Research & Teaching Assistant – Air University Islamabad *September 2020 – September 2022*

- Conducted research and published a conference paper under the supervision of Assistant Professor Muhammad Habib Mahmood
- Conducted undergraduate laboratory lectures
- Tutored and mentored undergraduate students

PROFESSIONAL EXPERIENCE

Datapoint – Airloop (Islamabad, Pakistan) *October 2022 – April 2023*
AI Engineer

- Designed pavement crack detection and applied Geo mapping
- Developed commercial level Traffic Analytics model
- Managed and supervised the AI team

Datapoint – Airloop (Islamabad, Pakistan) *August 2022 – October 2022*
AI Engineer Intern

- Developed a prototype for UAV-based pavement crack detection system

Pakhtunkhwa Energy Development Organization (Swat, Pakistan) *June 2018 – July 2018*
Electrical Engineer Intern

- Supervised the design and construction of run of the river dam (36.6MW)

PUBLICATIONS

1. **Hamid Syed** and Muhammad Habib Mahmood. "3D Human Reconstruction with Corresponding 3D Texture Model: A Comparison of Salient Approaches" (ICETECC – December 2022)
2. **Hamid Syed**, Muhammad Waseem Khan, Muhammad Habib Mahmood and Tanzeel Ur Rehman. "Exploring 3D Latent Feature Embedding for Few and Single-Shot Unsupervised Person Re-Identification (PATTERN RECOGNITION – Under Review)
3. Md. Hasibur Rahman, Emmanuel Ayipio, Dorcas Lukwesa, Jingyi Zheng, Daniel Wells, **Hamid Syed** and Tanzeel Ur Rehman. "A High-Throughput Phenotyping System Evaluating Salt Stress Tolerance in Kale Plants Cultivated in Aquaponics Environment". Frontiers in plant science. Technical Advances in Plant Science. (Under Review)

PRESENTATIONS

Poster Presentation

- **Syed, Hamid.** & Rehman, T. U. (2023). "Automated In-field Ornamental Nursery Plant Counting and Quality Assessment With End-to-End Deep Learning for Inventory Management". College of Agriculture Graduate Research Poster Showcase, Auburn, Alabama, USA. October 26, 2023. (**WINNER**)

BOOK CHAPTERS

- Fiaz Ahmad, Ruihong Zhang, Maryam Hussain and **Hamid Syed**. The Art of Doing Research (Under Review)

SCHOLARLY WORK

- Abstract: "Automated In-field Ornamental Nursery Plant Counting and Quality Assessment With End-to-End Deep Learning for Inventory Management", accepted for an ORAL presentation at the 16th International Conference on Precision Agriculture (ICPA).
- Attended ASABE Annual Meeting 2023

AWARDS

- Winner of Graduate Student Poster Competition (Auburn - Nov 2023)
- Winner of National Idea Bank Competition (Natural Resources Sector – 2021)
- Merit based full fee waiver (2020 – 2022)
- Recipient of National Talent Scholarship (2016 – 2020)
- Merit based tuition fee waiver (2014 – 2016)

SKILLS

- Programming Languages: Python, MATLAB, R, C++, LaTeX
- Libraries and Frameworks: OpenCV, NumPy, Pandas, Matplotlib, Scikit-learn, object detection API
- Design: AutoCAD, Proteus, PSpice
- Developer Tools: Linux, JupyterLab, Pycharm, Visual Studio Code
- Hardware: Machine 4090 Ti, Jetson Orin, Micro Controller 8051, Esp 702 Micro Controller
- Photogrammetry: Pix4DMapper, Pix4d Fields, DJI Terra, Correlator3D, Agisoft, ArcGIS Pro
- Experienced with small UAVs, large UAVs, unmanned ground vehicles as well as their applications

CERTIFICATIONS

- Certified UAV Remote Pilot (Federal Aviation Association)
- Pesticide Applicator Permit (Alabama Department of Agriculture & Industries)

PROJECTS

Ornamental Nursery Inventory Management System (Ph.D. Research Project)

- Developing UGV based data collection pipeline
- Developing deep learning and statistics-based model for plant counting and quality assessment

Unmanned Aerial Vehicle (UAV) based Weed Detection System (Ph.D. Research Project)

- Data collection using different UAVs (Phantom4M and Mavic3M)
- Generating photogrammetry and Processing multispectral imagery using deep learning techniques

UAV and UGV based Smart Spraying System (Ph.D. Research Project)

- Using camera modalities and different software for spray path generation
- Effective Smart Spraying by utilizing embedding systems and deep learning-based object detection and segmentation models.

Development of Deep Learning based Pavement Condition Index, Survey, GIS mapping, and reporting of 5000 kms of roads in Khyber Pakhtunkhwa. (Corporate Project - 2023)

- Development of a deep learning-based pavement condition index (PCI) for assessing the condition of roads
- Use of GIS mapping technology to analyze and visualize the collected data, allowing for efficient identification of problematic areas and prioritization of maintenance and repair efforts.

Deep Learning Based Road Traffic Analytics system to classify vehicles on the basis of axle-load. (Corporate Project - 2023)

- Collection and annotation of diverse novel dataset which consists of 33 different classes
- Implementation of the system at strategic locations, such as toll booths or weigh stations, to collect data on vehicle traffic and ensure compliance with weight limits

Exploring a 3D Latent Feature Space Embedding, for Person Re-identification (MS Thesis Project - 2022)

- Explored 3D latent Space, transformed 2D images into 3D Images embedding and utilized it for person Re-Identification.
- Proposed a Novel Method to attempt the Person Re-Identification in 3D which mimic the Human Brain functionality.