Keshara Weerasinghe

Curriculum Vitae

cjh9fw@virginia.edu | Website | GitHub | LinkedIn | Full Resume

RESEARCH INTERESTS

Augmented Reality (AR) for AI cognitive assistance, egocentric multimodal human activity recognition, real-time sensing systems, edge computing optimization.

PUBLICATIONS (SELECTED)

Weerasinghe, K., [Co-authors Redacted for Double-Blind Review] (2025) *EgoEMS: A High-Fidelity Multimodal Egocentric Dataset for Cognitive Assistance in Emergency Medical Services*, submitted, (Under review).

Weerasinghe, K. , Janapati, S., Ge, X., Kim, S., Iyer, S., Stankovic, J. A., & Alemzadeh, H. (2024) Real-Time Multimodal Cognitive Assistant for EMS, in 9th ***ACM/IEEE IoTDI*** Conference on Internet of Things Design and Implementation at CPS-IoT Week, Hong Kong

Weerasinghe, K. ,Roodabeh, S. H. R., Hutchinson, K., & Alemzadeh, H. (2024) Multimodal Transformers for Real-Time Surgical Activity Prediction , in 2024 IEEE International Conference on Robotics and Automation ***ICRA***, Yokohama, Japan,

Weerasinghe, K., Tennakoon, S. C., Kularatne, K. N. U., Nawinne, I., Ragel, R., & Jayakody, H. (2021) Using Near-Infrared Spectroscopy for Vein Visualization , In ***IEEE ICIAfS*** 10th International Conference on Information and Automation for Sustainability

WORK EXPERIENCE (SELECTED)

CURRENT, FROM AUG 2022 (FT)

University of Virginia
Research Assistant, Teaching Assistant

During this time, I am working on fine-grained human action recognition for robot-assisted surgery, cognitive assistant systems for emergency responders on resource-constrained edge devices, and open-source multimodal datasets for skilled activities. These works have been published on **ICRA, IoTDI in CPS-IoT week of 2024.**

SEP 2021 – DEC 2022 (PT)

University of Peradeniya
Research Assistant

This position involved developing an anomaly detection system for injection molding using computer vision, enabling real-time safety monitoring in industrial automation. This system has been deployed in Mona Exports pvt ltd in Sri Lanka and is functioning to this date.

AWARDS (SELECTED)

2024 **Runner-up: Best Research Poster**
ECE Research Poster, University of Virginia

2021 **Best Research Article**
EscaPe, University of Peradeniya

2021 **Best Project:** Covid-19 ICU RPMS
SLASSCOM Ingenuity Awards 2021

2019 **Winner: Agriculture Category**
ACES Hackathon

PROJECTS (SELECTED)

Data Collection System for Augmented Reality AI Assistance in Emergency Medical Services (Ongoing Research)

Developed a unified software–hardware platform to capture egocentric perspectives of EMS responders during simulated emergencies, recording hand movements and CPR quality metrics via GoPro cameras, smartwatches, ToF sensors, and depth cameras in collaboration with multiple EMS agencies.

Context-Aware Augmented Reality for Cognitive Assistance in EMS – Ongoing Research

Developing a context-aware AR cognitive assistant system for cooperative situational awareness in medical emergencies utilizing a multimodal action recognition model optimized for resource-constrained devices achieving SOTA performance.

COVID-19 Real-time ICU Patient Monitoring System | Voluntary Project

Designed and implemented a real-time remote ICU monitoring system within 3 days, enabling centralized monitoring of patient vitals to reduce health personnel's exposure risk by 80% and increase the efficiency of monitoring by 75%.

EDUCATION

CURRENT **PhD Computer Engineering**
ADVISOR: HOMA ALEMZADEH
GPA: 3.84
University of Virginia

2016-2021 **BSc Computer Engineering**
GPA: 3.70
University of Peradeniya

REFERENCES

NAME **Dr. Homa Alemzadeh**
EMPLOYER University of Virginia

NAME **Prof. John Stankovic**
EMPLOYER University of Virginia

SERVICES (SELECTED)

2024 **Voluntary Mentor**
Senior Capstone Project
Charlottesville High School

2024 **External Reviewer**
ICCPS 2025, IEEE S&P 2025, ICRA 2025

2021 **Voluntary Developer**
Covid-19 ICU Patient Monitoring System