

# KAVISHWA WENDAKOON

Doctoral Researcher · Software Engineer

University of Oulu, Finland · FAST Doctoral Research Network

PhD Student  
University of Oulu

3+ Years  
Industry Experience

10+ Projects  
Shipped to Production

3 Publications  
Peer-Reviewed

## PROFESSIONAL PROFILE

Doctoral researcher and software engineer at the intersection of adaptive AI and clinical safety. I design safety-constrained architectures for clinical AI that must keep adapting after deployment, validate them with clinicians, and back every design decision with evidence.

## EXPERIENCE

### Doctoral Researcher

University of Oulu · Oulu, Finland 2024 – Present

FAST-funded research on trustworthy, self-adaptive clinical AI. Supervised by Nirnaya Tripathi.

- Paper I (Accepted):** SLR of self-adaptive AI in medical software; mapped engineering and governance gaps across 20+ primary studies.
- Paper II (Accepted):** Designed a Constraint Layer over MAPE-K with safety bounds, validation gates, evidence anchoring, and audit/rollback. Evaluated with 7 clinician stakeholders.
- Paper III (In Progress):** Runnable prototype tested under concept drift and adversarial feedback; ablation study of constraint mechanisms vs. unconstrained baseline.
- Paper IV (Planned):** Mixed-methods clinician study on trust calibration and reliance (16-24 participants); targeting JAMIA or JBI.

Self-Adaptive AI · MAPE-K · DSR · Runtime Governance · Simulation · Python · Next.JS

### Software Engineer

Informatics International Pvt Ltd · Colombo, Sri Lanka 2019 – 2022

Full-stack engineer on national-scale government systems and critical civic infrastructure.

- Engineered e-passport processing infrastructure for IOM Sri Lanka at government-grade scale.
- Built and deployed SLRCMS, a readmission case management system adopted nationally by the Sri Lanka Ministry of Health.
- Developed multilingual civic platforms, broadening access to essential government services.

React · TypeScript · Node.js · PostgreSQL · Docker

## EDUCATION

### M.Sc. Software Engineering

University of Oulu · Finland 2022 – 2024

Thesis: AI-driven mental workload monitoring combining EEG signal processing with LLM-driven well-being recommendations for workplace settings.

EEG · LLMs · Python · Signal Processing

### B.Sc. Software Engineering

NSBM University · Colombo, Sri Lanka 2017 – 2020

Thesis: AI-powered doctor-patient management software designed and validated end-to-end.

Java · Python · React · MySQL

## OPEN TO

- Research collaborations in clinical AI or SE
- Clinical study sites for Paper IV
- Industry roles bridging research and production

Student mentorship in healthcare AI or trustworthy ML

## CONTACT

kaveebhashiofficial@gmail.com

kavishwa.wendakoon@oulu.fi

Oulu, Finland (UTC+3)

[GitHub](#) · [LinkedIn](#) · [ORCID](#)

## SKILLS

**Languages:** Python, TypeScript, Dart, Java, SQL

**Frameworks:** React, Next.js, Node.js, Flutter, PyTorch

**ML / AI:** Self-Adaptive AI, MAPE-K, LLMs, On-Device ML

**Systems:** Docker, Kubernetes, PostgreSQL, Redis

**Domains:** Clinical AI, mHealth, MDR/GDPR, E-Governance

## RESEARCH FOCUS

### 01 Self-Adaptive AI in CDSS

Safety-constrained adaptive clinical decision support.

### 02 Runtime Governance

Constraint layers, audit mechanisms, and rollback policies.

### 03 Trustworthy AI in Healthcare

Clinician understanding, verification, and trust in AI.

### 04 Empirical Software Engineering

DSR, simulation-based validation, mixed-methods evaluation.

## PUBLICATIONS

2026 Conference · Accepted

**A Safety-Constrained Architecture for Adaptive Clinical Decision Support**

2025 Conference · Accepted

**Self-Adaptive AI in Clinical Decision Support: A Systematic Review**

2025 Conference · Accepted

**Reducing Cognitive Overload in Software Engineers: A Design Science Approach**

TKTP 2025, Helsinki

2024 M.Sc. Thesis

**AI-Driven Mental Workload Monitoring and Well-Being Management**

2020 B.Sc. Thesis

**Doctor-Patient Management Software and Its Validation**

## AWARDS

2025 CISPA-ELLIS Travel Scholarship

European Laboratory for Learning and Intelligent Systems

2024 Finnish SE Doctoral Pilot

University of Oulu / Finnish Government

2022 National Recognition, SLRCMS

Informatics International / Ministry of Health