

Piriyankan Kirupaharan

- HCI Researcher - Accessibility - Immersive Technology

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Education

PhD in Computer Science - University of Rhode Island (URI), USA • 2021 – Present

Focus: Accessibility & Immersive Technology (VR for adults with Intellectual and Developmental Disabilities)

B.Sc. in Computer Science - University of Sri Jayewardenepura, Sri Lanka • 2013 – 2017

First Class; Gold Medalist; Computer Science, Mathematics and Physics

Research Experience

Graduate Research Assistant — ASSET Lab, URI • 2021 – Present

- **VR Accessibility for I/DD:** Designed and conducted a qualitative VR accessibility study; Synthesized insights into actionable design recommendations and communicated findings through compelling storytelling and visual presentations
- **R3 - Recognize, Report, Respond:** Developed a mobile app that teaches adults with I/DD to learn about abuse through participatory design; published on the [Apple App Store](#) and [Amazon Appstore](#).
- **S2 - Self-Care & Support:** Co-designed and developed a mobile app to help adults with I/DD self-regulate post-trauma (guided exercises, motivational quotes); published on the [Apple App Store](#) and [Google Play Store](#).

Industry Experience

Axiata Digital Labs, Sri Lanka - Associate Technical Lead • 2020 – 2021

- Backend (Java/Spring): Lead backend and front-end team to develop a fintech mobile application. **Improved API performance by ~40%** via profiling and caching; designed and developed microservices.
- DevOps: Deployed microservices in Docker/Kubernetes, CI/CD (Jenkins).

Axiata Digital Labs, Sri Lanka - Senior Software Engineer • 2019 – 2020

- Designed and built **microservices from scratch** for a financial application; integrated legacy Finacle systems via ESB services converting FIXML to REST.
- Improved deployment velocity and environment parity by **containerizing services with Docker Swarm** across Dev, QA, Staging, and Production.
- Built a Spring Boot backend powering public Wi-Fi access for customers, owned API design and end-to-end implementation

Dialog, Sri Lanka - Software Engineer • 2018 – 2019

- Increased data-processing throughput by introducing Kafka-based asynchronous pipelines for bulk operations.
- Developed Dialogflow billing chatbots, gaining hands-on experience with conversational AI systems.

Publications (peer-reviewed)

- **Kirupaharan, P.**, Ranalli, T-M., Venkatasubramanian, K. (2025). Understanding the Accessibility of Single-User VR for Adults with I/DD. ACM DIS 2025.
- Lewis, B., **Kirupaharan, P.**, Ranalli, T-M., Venkatasubramanian, K. (2024). A3C: Image-Association Authentication for People with Upper-Extremity Impairments. ACM TACCESS 2024.
- Venkatasubramanian, K., Ranalli, T-M., **Kirupaharan, P.**, Cannon, L. (2024). Considering Trauma in Accessible Design for Adults with Intellectual and Developmental Disabilities. Communications of the ACM (CACM) 2024

- B. Lewis, T-M. Ranalli, A. Gourley, **Kirupaharan, P**, K. Venkatasubramanian. “I... caught a person casing my house... and scared him off.”: The Use of Security-focused Smart Home Devices by People with Disabilities,” ACM CHI Conference on Human Factors in Computing Systems (CHI’23). (Honorable Mention Award: Top 5%)
- **Kirupaharan, P.**, Fernando, T.G.I. (2019/2021). Mobile Application to Identify Fish Species Using YOLO and Convolutional Neural Networks. SLAAI AI Conference.

Skills

- **Human Centered Research:** Co-design, study design, interviews, transcribing, thematic analysis
- **Programming Languages:** Python, Java (Spring/Spring Boot), Dart (Flutter)
- **Dev and Design tools:** Spring Tool Suite, VS code, Git, Figma, Miro, Docker, Kubernetes, Kafka/RabbitMQ, Jenkins, ELK

Awards and Certifications

- Winner, Hack@URI Mini HackDay - Google Gemini
Recognized as a first-time winner for developing a VR application for interactive human anatomy learning
- Virtusa Gold Medal
Awarded for achieving First-Class Honors and the highest GPA in the B.Sc. Special Degree in Computer Science.
- Google Cloud Professional Cloud Architect - Issued, Jan 2021
- AWS Certified Solutions Architect – Associate - Issued Dec 2019
- Bronze Award, NBQSA Tertiary Student Project (2018)
Recognized for developing a mobile application for fish species identification.
- Selected Participant, JENESYS Program (Japan) - 2017
Selected by the Japanese Government as one of 11 students nationwide to represent Sri Lanka at international workshops; participated alongside delegates from SAARC countries, with a focus on telecommunications.