# Avishka Shamendra

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Ⓜ Medium Ⓖ Google Scholar

A PhD student passionate about security and privacy seeking an opportunity to gain research experience in emerging challenges in the field.

Recently, I have become intrigued by the security issues surrounding AI agents, both the security of AI agents themselves and the security risks introduced by their use.

**Research Interests:**
*AI Security, Web Security, System Security, Trusted Computing, Data Privacy*

## EDUCATION

**Stony Brook Univeristy, NY**                                   Aug. 2025 – Present
PhD in Computer Science                                   **Cumulative GPA: 4.00/4.00**

· **CSE 509 System Security - A**
· **CSE 512 Machine Learning - A**
· CSE 508 Network Security - In progress
· CSE 519 Fundamentals of Data Science - In progress

**University of Moratuwa, Sri Lanka**                          Nov. 2018 – June 2023
B.Sc. Engineering (Hons.), First Class                    Cumulative GPA: 4.13/4.20
Computer Science & Engineering            Dean's List: Semester 1, 2, 3, 4, 5, 6, 7 & 8

· Computer Science & Engineering Gold Medal Winner: Rank 1/128

**Nalanda College, Colombo, Sri Lanka**                          Graduated in 2017
G.C.E. Advanced Level 2017 (Physical Sciences)          4As | Z-score: 2.314 (top 0.05%)

· National university entrance examination taken by more than 270,000 students

## RESEARCH EXPERIENCE & PUBLICATIONS

**TruFaaS - A Trust Verification Framework for FaaS**          June 2022 – June 2023
Final Year Research Project, Supervisor - Dr. Sunimal Rathnayake                GitHub

· Proposed a novel architecture for a trust verification framework to calculate and verify the trust of functions on a FaaS platform.
· The framework can be integrated on top of an existing FaaS platform and has the capability to calculate a trust value for each function deployed on the platform.
· During function invocation, before a container is started, a novel trust verification algorithm uses a Merkle tree data structure and the server's Trusted Platform Module (TPM) to verify the trust of the function against the previously calculated and stored trust values.
· Implemented *TruFaaS* on the open-source FaaS platform *Fission* to demonstrate its practical effectiveness.
· Played a critical role in finalizing the overall framework architecture and was primarily responsible for designing the trust verification algorithm.
· Technologies: Go | Docker | Kubernetes | Fission Serverless Framework
· **Publication**: A. Shamendra, B. Peries, G. Seneviratne, and S. Rathnayake, "TruFaaS-Trust Verification Framework for FaaS", in *3rd International Conference on Ubiquitous Security (UbiSec)*, pp. 304–318, 2023, Available: UbiSec 2023 Publication

## Work Experience

**Senior Software Engineer - WSO2 LLC** <span style="float:right">Feb 2025 – Jul 2025</span>

Full-time <span style="float:right">Technologies: Java | Go | K8s | Docker | Maven</span>

· Leading the development of the API Governance Component for *WSO2 API Manager*, enabling governance of API behavior and security.

**Software Engineer - WSO2 LLC** <span style="float:right">July 2023 – Feb 2025</span>

Full-time <span style="float:right">Technologies: Java | Go | K8s | Docker | Maven</span>

· Implemented AI API Support to expose services like OpenAI and Mistral as managed APIs in the API Manager.
· Designed and developed the metrics module for *Choreo Connect*, gaining hands-on experience with Kubernetes, Docker, and other cloud-native technologies.

**Intern Software Engineer - WSO2 LLC.** <span style="float:right">Dec. 2021 – Aug. 2022</span>

Full-time <span style="float:right">Technologies: Java | Maven | FHIR</span>

· Designed and developed the *OAuth2/FHIR Scope Management Module* for the *WSO2 Open Healthcare* solution, which helped me grasp security concepts such as OAuth2 and OpenID Connect.

**Intern Software Engineer - IXD Labs (Pvt) Ltd.** <span style="float:right">May 2020 – May 2021</span>

Part-time | Startup <span style="float:right">Technologies: Python | Node | K8s | Docker</span>

· At *IXD Labs* I collaborated with a small team to complete a wide range of projects within a given time frame and gained experience in software development and cloud technologies.

## Selected Academic & Personal Projects

**UniLabs Inventory Management System** <span style="float:right">July 2021 – Dec. 2021</span>

Academic Project <span style="float:right">GitHub | YouTube</span>

· Designed and developed a barcode-based automated inventory management system for university laboratories, while gaining exposure to web and mobile development and the complexities of software architecture design.
· Technologies: Django | React | Android | Flutter-BLoC | PostgreSQL

**Agro Wholesale Market** <span style="float:right">Dec. 2020 - Feb. 2021</span>

Academic Project <span style="float:right">GitHub</span>

· Implemented a web-based system which allows farmers to post about their harvested produce for sale and wholesale buyers to privately respond with bids, following MVC architecture.
· Technologies: Node | Express | PostgreSQL | React

**Predicting GI Track Anomalies Using KVISAR Dataset** <span style="float:right">July 2020</span>

Academic Project <span style="float:right">GitHub</span>

· Focused on predicting the presence of gastric intestinal track anomalies such as polyps, z-lines and ulcerative colitis. Used the KVASIR dataset and deep CNN architectures such as InceptionV3, Densenet201 and VGG-19
· Technologies: TensorFlow | Python | Matplotlib

**Druggable Protein Prediction** <span style="float:right">April 2023 - May 2023</span>

Academic Project <span style="float:right">GitHub</span>

· Extracted feature encoding from protein strings to predict whether the protein is druggable.
· Did extensive tests of encoding combinations and ML algorithms to improve the predictability
· Technologies: Sklearn | Python | Matplotlib

**COVID-19 Situational Analysis Dashboard** <span style="float:right">March 2021</span>

Personal Project <span style="float:right">GitHub</span>

· Used to provide COVID-19 case figures to Sri Lankans through the API of the Health Promotion Bureau
· Technologies: React | React-Redux | Google Charts

### Mobile Application Projects                                                    2020

Personal Projects                                    GitHub-Timetable App | GitHub-Mora GPA App

· My Timetable App: State of the art application for school children to keep track of their timetable. Had 5000+ downloads on Play Store before the app was retired.
· Mora GPA App: Designed for undergraduates of University of Moratuwa to keep track of their GPA. Had 400+ downloads on Play Store before the app was retired.

## AWARDS & SCHOLARSHIPS

**IBM Gold Medal** for being the graduand with the highest GPA in the Computer Science & Engineering Honors Degree at the University of Moratuwa, awarded at the General Convocation  2023

**IBM Engineering Scholarship** for achieving the highest GPA for semesters 3 and 4 in the Faculty of Engineering, University of Moratuwa                                    2019/2020

**Mahapola Scholarship** awarded by the Sri Lankan government for being a merit award winner (top 1%) in the GCE Advanced Level examination                                    2018

## COMPETITIONS & HACKATHONS

**Top Ten** **IEEEXtreme 14.0, 15.0, 16.0 - 2020, 2021, 2022**
Consistently ranked among the top ten in Sri Lanka for three consecutive years

**Winners** **Decode 1.0 - 2021**
Winners of the programming hackathon organized by the ACM student chapter of UoM

**Winners** **Dentsu RiseUp Challenge Sri Lanka - 2022**
Pitched *Food Pulse Mobile Application* to minimize food waste in hotels & shops in Sri Lanka by re-distributing excess food

**Finalists** **TADHack Sri Lanka - 2022**
Reached the finals of TADHack telecom application development hackathon with the *Food Pulse Mobile Application*

## TECHNICAL PROFICIENCIES

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|---|---|
| **Programming Languages** | Java, Python, Go, JavaScript, C# |
| **Cloud-based** | Kubernetes, Docker, AWS, Azure |
| **Databases** | MySQL, PostgreSQL, Oracle, MongoDB, Cloud Firestore |
| **Web/Mobile Development** | Django, Node, Express, React, Flutter |
| **Other** | Git, LaTeX, TensorFlow, Maven |

## LEADERSHIP & VOLUNTEERING

**IT/Marketing Director - IAESTE, Sri Lanka**                                    2022/23
IAESTE is a global non-profit organization offering students international technical internship opportunities. Was responsible for all IT & marketing activities, including the development of IAESTE Sri Lanka website.

**Starting Member/ Volunteer Tutor - Danuma Yaathra**                              2018/19
Danuma Yaathra is a non-profit organization that conducts workshops on STEM subjects in under-resourced schools in Sri Lanka

**President - Science Society, Nalanda College, Colombo** 2016/17

Led the high school science society overseeing all activities and programs organized by the society

*References available upon request*