

Avishka S.N. Shamendra

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📖 [Medium](#) [Google Scholar](#)

A recent graduate passionate about security and privacy, seeking a PhD opportunity to deepen knowledge and make a meaningful impact. Recently, I have been intrigued by the principles of trusted computing.

EDUCATION

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

Software Engineer - WSO2 LLC.

July 2023 – Present

Full-time

Technologies: Java | Go | K8s | Docker | Maven

- Currently involved with the development of the API Governance Component for *WSO2 API Manager* to govern the behavior and security of managed APIs.
- Contributed to the development of the AI API Support feature in the WSO2 API Manager, which introduced support to expose AI APIs from SPs such as OpenAI & Mistral as managed APIs through the API Manager.
- Designed and developed the metrics module for *Choreo Connect*, a cloud-native API gateway, while gaining experience with cloud technologies such as Kubernetes and Docker.

Intern Software Engineer - WSO2 LLC.

Dec. 2021 – Aug. 2022

Full-time

Technologies: Java | Maven | FHIR

- 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.

May 2020 – May 2021

Part-time | Startup

Technologies: Python | Node | K8s | Docker

- 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

July 2021 – Dec. 2021

Academic Project

[GitHub](#) | [YouTube](#)

- 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

Dec. 2020 - Feb. 2021

Academic Project

[GitHub](#)

- 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

July 2020

Academic Project

[GitHub](#)

- 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

April 2023 - May 2023

Academic Project

[GitHub](#)

- 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

March 2021

Personal Project

[GitHub](#)

- 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** **IEEEEXtreme 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

Programming Languages	Java, Python, C#, Go, JavaScript
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