

Koushikur Islam Shohag

Graduate Student, Master of Information and Communications Technology, Western Sydney University, Sydney, New South Wales, Australia

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RESEARCH INTERESTS

Distributed Systems, Edge Computing, Cloud Computing, High Performance Computing (HPC), Internet of Things (IoT)

EDUCATION

Western Sydney University, Sydney, New South Wales, Australia January 2023 — December 2024
Master of Information and Communications Technology CGPA: 6.313/7.00
Thesis Title: Intent-Based Microservice Application Placement in the Compute Continuum

American International University - Bangladesh, Dhaka, Bangladesh January 2018 — December 2021
Bachelor of Science in Computer Science and Engineering CGPA: 3.97/4.00
Thesis Title: Human Face Generation using Generative Adversarial Network

ACADEMIC EXPERIENCE

The Smart and Distributed Computing (SDC) Lab Sydney, New South Wales, Australia
Research Assistant February 2024 — Present

- Collaborated on multiple research projects with faculty members and other researchers in the team.
- Conducted literature reviews to identify gaps in research and presented before the team.
- Assisted in designing experiments using smart technologies (HomeAssistant, MQTT server, PahoMQTT, Raspberry Pi, Mininet, OpenAI and Docker).
- Collected and analyzed data using statistical tools (Python, R, MQTXX) to evaluate research objective and support the hypothesis.
- Co-authored research paper using LaTeX for publication in peer-reviewed conference, enhancing skills in scientific writing and critical analysis.
- Prepared documentations with research process and findings to ensure the reproducibility and clarity for future research.
- Provided guidance to undergraduate students and interns on research techniques, methodologies to foster collaborative learning environment.

Faculty of Science and Technology, American International University - Bangladesh Dhaka, Bangladesh
Teaching Assistant January 2021 — May 2021

- Assisted instructor to organize course materials and conduct class tests for the courses Web Technologies and Advanced Programming in Web Technologies.
- Guided students during the lab sessions and helped them understanding the key concepts in web technologies using PHP, Laravel, JavaScript, jQuery, MySQL and Apache server.
- Provided students consultations sessions to address their difficulties and challenges related to the coursework and assignments.
- Graded assignments, class tests and exams to provide constructive feedback to the students for improving their skills and understanding related to web technologies.

AWARDS

Winner of the Postgraduate Computing Project Award at Optimize 2023 Sydney, New South Wales, Australia
Western Sydney University December 2023
Recognized for excellence in the computing category for postgraduate studies, awarded for the best project titled EcoBrowse that creates carbon emission awareness when using web servers at Optimize 2023 organized by Western Sydney University.

Vice Chancellor's Academic Excellence Postgraduate Scholarship Sydney, New South Wales, Australia
Western Sydney University January 2023 — Present
To encourage exceptional academic achievements of international Postgraduate applicants, this Scholarship is awarded to short listed candidates which covers 50% of the cost of the tuition fees.

Summa Cum Laude Award Dhaka, Bangladesh
American International University - Bangladesh April 2023
Awarded with the highest academic excellence award (Gold Medal) for outstanding performance throughout the bachelors program.

Dean's List Award*American International University - Bangladesh*

Dhaka, Bangladesh

January 2018 — May 2021

Received Deans' List Honors award twice for excellent academic performance for the semester's Fall, 2018-19, Spring 2018-19. Dean's List Honors award is given for an excellent academic result for a particular semester.

Merit-based Academic Scholarship*American International University - Bangladesh*

Dhaka, Bangladesh

January 2018 — May 2021

Enjoyed academic scholarship throughout the whole undergraduate period at American International University-Bangladesh for excellent academic performance.

PROJECTS

Intent-Based Microservice Application Placement in the Compute Continuum

Australia

Sydney, New South Wales,

Graduate Researcher

Project, August 2024 — Present

- Researched and developed an high level intention-based microservice application deployment recommendation tool in computing continuum.
- Developed algorithm that can map high level user intents to application placement strategies to help improve efficiency.
- Gained hands on experience to work with Natural Language Processing libraries along with state of the art research tools including Mininet, OpenAI, Docker and Python.
- Preparing to publish the outcome of this research in upcoming conference papers to contribute valuable insights to the field and foster collaboration among researchers.

DigitalX Assisted Living Solutions - OpenAIoT*Graduate Researcher*

Sydney, New South Wales, Australia

Project, February 2024 — July 2024

- Collaborated on a smart assisted living solution for elderly citizens with physical challenges using OpenAIoT platform.
- Integrated multiple sensors including fall, door, smoke and intrusion camera to support the safety need of elderly people at home using MQTT server, file storage server and Kafka messaging service.
- Analyzed the behaviors for people using data provided from sensors using MQTT server, NumPy and Edge devices.
- Prepared technical documentation for of this project for new researchers to continue work on it.

ABS Trafikskola*Senior Full-stack Software Engineer*

Södertälje, Stockholm, Sweden (Remote)

Project, February 2023 — Present

- Served as the lead developer for ABS Trafikskola, one of the largest driving schools in Stockholm, Sweden, where I contributed to the overall software development of a comprehensive booking system for driving lessons, a content management portal, and an ERP system.
- Provided mentorship to junior developers by reviewing code on Bitbucket and personal consultations to deliver high quality product as a team.

EMC Technologies*Full-stack Software Engineer*

Melbourne, Victoria, Australia

Project, July 2022 — January 2023

- Worked for the biggest product testing and certification company in Australia, EMC Technologies for their ERP system which manages their process flow.
- Played a Full Stack Developer role to plan, architect, implement and provide them with required cloud based business solutions using AWS, .NET Core, Redis, Kafka and Next.js.
- Implemented several microservices including bulk email service, payment service, payroll service and identity service.

Transcom Digital*Full-stack Software Engineer*

Dhaka, Bangladesh

Project, January 2022 — July 2022

- Contributed to the largest e-commerce platform of Bangladesh, Transcom Digital as a Full Stack Software Engineer that is highly scalable, robust and efficient.
- Managed deployment process using tools including Docker, Kubernetes and CI/CD pipelines in AWS Cloud platform integrating with GitHub repository.

COURSES

Master's Courses

- Research Preparation of Postgraduate Studies
- Cloud Systems Development
- Advanced Cloud Computing
- Programming for Data Science (R)
- Advanced Topics in User Systems Interaction
- Systems Analysis and Database Management Systems
- Applied Cybersecurity

Bachelor's Courses

- Data Structures
- Algorithms
- Artificial Intelligence
- Differential Calculus and Coordinate Geometry
- Linear Programming
- Statistics and Probability
- Theory of Computation
- Operating Systems
- Computer Organization and Architecture
- Object Oriented Programming (Java, C#)

INDUSTRY EXPERIENCES

ABS Trafikskola

Senior Full-stack Software Engineer

Södertälje, Stockholm, Sweden (Remote)

June 2024 — Present

- Led the development of enterprise resource planning and lesson booking systems for the one of the largest driving schools in Stockholm, Sweden following microservice architecture using ASP.NET, Next.js, AWS, Docker and Kubernetes.
- Implemented continuous integration and continuous deployment (CI/CD) strategy to test and automate faster application deployment and releases in each sprints.

Astha IT

Full-stack Software Engineer

Dhaka, Bangladesh (Onsite)

October 2021 — February 2023

- Engaged directly with clients to collect requirements, plan, design, implement and deliver highly scalable and robust software solutions primarily using ASP.NET, React.js and AWS following agile method and microservices architecture in various domains including e-commerce, enterprise resource planning systems and gaming.
- Involved in code review process using Bitbucket and Jira along with preparing API documentations for improving new on boarding process and stronger team collaboration.

TECHNICAL SKILLS

- **Programming:** Python, R, Java, C#, C/C++, PHP
- **Frameworks:** .NET Core, Node.js, React.js, Next.js
- **Databases:** PostgreSQL, MySQL, MongoDB, DynamoDB, Redis
- **Cloud:** Amazon Web Services (AWS)
- **Operating Systems:** Linux, MacOS, Windows
- **Tools:** LaTeX, Docker, Kubernetes, Git, Jira, Kafka, Selenium, Apache Kafka, GrandNode

REFERENCES

Professor Bahman Javadi

Interim Dean, Computing Discipline Lead and Co-director at Smart and Distributed Computing (SDC) Lab , School of Computer, Data and Mathematical Sciences, Western Sydney University, Sydney, New South Wales, Australia

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Scholar Profiles: Dr. Bahman Javadi — Google Scholar — LinkedIn

Associate Professor Rodrigo N. Calheiros

Associate Professor in ICT and Co-director at Smart and Distributed Computing (SDC) Lab, School of Computer, Data and Mathematical Sciences, Western Sydney University, Sydney, New South Wales, Australia

E-mail: r.calheiros@westernsydney.edu.au

Scholar Profiles: Dr. Rodrigo N. Calheiros — Google Scholar — LinkedIn