

Dr Ahmed Osama Basil Al-Mashhadani

Senior Lecturer in Computer Science | Network Engineering | Applied AI

University of Northampton - Centre for Advanced and Smart Technologies

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ACADEMIC PROFILE

Computer scientist and network engineer whose research connects software-defined and programmable networks, Quality of Service, Quality of Experience, fairness, applied machine learning, Internet of Things and connected systems. Teaching and supervision span computer communications, operating systems, software engineering, media technology and collaborative computing projects.

EDUCATION

- 2018-2023** PhD, Network Engineering, University of Northampton
Research on software-defined intelligent networks, fairness and Quality of Experience prediction and evaluation.
- 2015-2018** BEng, Computer Systems Engineering, University of Northampton
First Class.
- 2011-2015** American Diploma, Cairo American College
GPA 3.7/4.0.

ACADEMIC AND PROFESSIONAL APPOINTMENTS

- Current** Senior Lecturer in Computer Science, University of Northampton
Teaching, research and student supervision in computing and intelligent networked systems.
- 2021-2024** Associate Lecturer, University of Northampton
Computing, electrical engineering and electromagnetism.
- 2021-2022** Bootcamp Guest Lecturer, University of Gloucestershire
Computing and network engineering.
- 2018-2023** Software Engineer and Team Leader, Zoogla Ltd
Software engineering, product management and engineering supervision.
- 2018-2023** Research Assistant, Lab of Optimization
Network fairness in multimedia using software-defined networks.
- 2020-2022** Senior Sabbatical Officer and Director, University of Northampton Students' Union
Senior trustee and cooperation management responsibilities.
- 2016-2019** Student Teaching Assistant, University of Northampton
Software engineering, operating systems, computer communications and media technology.

RESEARCH INTERESTS

- Software-defined networking, OpenFlow and P4
- Fairness in multimedia and resource allocation
- Internet of Things and smart systems
- Quality of Service and Quality of Experience
- Applied AI, classification and predictive analytics
- Virtual testbeds and experimental frameworks

Research, technical practice and leadership

A multidisciplinary record spanning programmable networks, intelligent systems, software engineering, teaching and technology leadership.

TECHNICAL EXPERTISE

Programming	Python, Java, JavaScript, HTML, CSS, PHP, C#, C++, Bash and data-driven application development.
Networks	Software-defined networking, P4, OpenFlow, Cisco networking, TCP/IP, QoS/QoE, multimedia delivery and network security.
Data and AI	Machine learning, classification, predictive analysis, data mining, graph theory and experimental evaluation.
Systems	Linux, Windows, macOS, Android, cloud hosting, IoT prototyping and virtualised network testbeds.
Interpersonal	Leadership, collaboration, mentorship, public speaking and academic supervision. Fluent in English and Arabic; elementary French.

SELECTED PROJECTS

- 2018-2021** Intelligent QoE prediction
Software-defined networks, machine learning and P4-based network control for Quality of Experience prediction.
- 2017-2018** Multi-modal emergency and security system
Connected emergency response concept combining sensing, live video, drone feedback and immersive interfaces.
- 2016-2017** IoT home automation
Arduino-based home automation with sensors, relay control, a web server and an Android application.
- 2021-2022** AI-assisted blockchain trading project
Exploratory personal project combining intelligent analysis and blockchain trading.

TEACHING AREAS

Computer communications; network engineering; software engineering; operating systems; media technology; electrical engineering foundations; collaborative computing projects; student research and dissertation supervision.

SELECTED AWARDS, SERVICE AND QUALIFICATIONS

- 2015-2023** Personal Excellence Scholarship, University of Northampton
- 2018** First Class Award in BEng Computer Systems Engineering, University of Northampton
- 2017** Second place, Entrepreneurship in Technology IoT event, University of Northampton
- 2016-2017** MTA Networking and Security Fundamentals, Microsoft Technology Associate
- 2017-2021** President, IT and Computing Society, University of Northampton
- 2017-2019** Chair/President, University of Northampton Students' Union
- 2014-2015** Public speaking delegate awards, Model United Nations, The Hague and New York

Research publications

Selected scholarly outputs. Citation files for each publication are available from the associated article on ahmedosamabasil.com.

PUBLICATION RECORD

- 2026 Joyal, J.; Basil Al-Mashhadani, A. O.; Al-Khafajiy, M. Personalised Fitness Training via Workout Difficulty Classification from Biometric and Performance Features. Proceedings of the 39th Conference of Open Innovations Association FRUCT, 114-119. DOI: 10.23919/FRUCT70069.2026.11506543.
- 2025 Al-Mashhadani, A. O. B.; Al-Khafajiy, M. Empowering IoT with Big Data Analytics. Book chapter. DOI: 10.1016/B978-0-443-21640-4.00015-6.
- 2024 Basil, A. O. Software Defined Intelligent Networks for Fairness and Quality of Experience Prediction and Evaluation. Doctoral thesis, University of Northampton.
- 2022 Al-Mashhadani, A. O. B.; Mu, M.; Al-Sherbaz, A. Quality of Experience Experimentation Prediction Framework through Programmable Network Management. Network, 2(4), 500-518. DOI: 10.3390/network2040030.
- 2022 Basil, A. O.; Mu, M.; Al-Sherbaz, A. Novel Quality of Experience Experimentation Framework Through Programmable Network Management. IEEE 19th Annual Consumer Communications and Networking Conference, 485-486. DOI: 10.1109/CCNC49033.2022.9700708.
- 2020 Basil, A. O.; Mu, M.; Opoku Agyeman, M. A Multi-Modal Framework for Future Emergency Systems. IEEE SmartWorld 2019, 17-20. DOI: 10.1109/SmartWorld-UIC-ATC-SCALCOM-IOP-SCI.2019.00048.
- 2019 Basil, A. O.; Mu, M.; Al-Sherbaz, A. A Software Defined Network Based Research on Fairness in Multimedia. ACM Multimedia Workshop on Fairness, Accountability and Transparency in MultiMedia, 11-18. DOI: 10.1145/3347447.3356750.
- 2019 Basil, A. O. A Consistency Based Research: P4 Versus OpenFlow and the Future of Software Defined Networks. University of Northampton Annual Research Conference.
- 2019 Basil, A. O.; Mu, M.; Sharman, J.; Goldsney, J. P4-Assisted Network Security for Future Smart Homes. Research paper. DOI: 10.13140/RG.2.2.17441.22889.

PUBLIC SCHOLARLY PROFILES

ORCID

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University of Northampton Research Explorer

<https://pure.northampton.ac.uk/en/persons/ahmed-osama-basil/>

Google Scholar

<https://scholar.google.com/citations?user=EsBYDCwAAAAJ>

Public academic CV generated 26 July 2026. Personal address, telephone number and email address are intentionally excluded.