Mohammed Alasmar *Curriculum Vitae*

PERSONAL DETAILS

Birth	October 26, 1987 (Gaza City, Palestine)
Address	2 Redvers Road, Brighton (BN2 4BG), UK
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EDUCATION

PhD. School of Engineering and Informatics 2015-2019
University of Sussex, UK

Research title: "Efficient Data Transport in Data Centre Networks based on Fountain Codes".
Supervisor: Dr George Parisis

MSc. Telecommunications and Information Systems 2012-2013
University of Essex, UK - Graduated with distinction (A+, top of my class).

BSc. Electrical Engineering\Communications and Control 2005-2010
IUG, Palestine - Graduated with a GPA of 92.07% (top of my class).

WORK EXPERIENCE

Network Engineer 2018-present
MAVIS Broadcast Ltd., Brighton, UK

My work focusses on the design and implementation of efficient Forward Error Correction mechanisms for video streaming between mobile devices and cloud infrastructure.

Visiting Researcher 2019-present
University of Sussex, UK

My research focusses on the development of network protocols for next-generation networks and study of Internet traffic.

Associate Tutor 2015-present
University of Sussex, UK

I have been an Associate Tutor at the School of Engineering and Informatics, running weekly lab sessions and seminars, marking students' projects and assignments for the following modules: Computer Networks, Operating Systems, C/C++ Programming and Global Design Challenge.

Lecturer 2013-2014
University College of Science and Technology, Palestine

I taught the following modules: Sensors, Digital Integrated Circuits and supervising final-year projects.

Teaching Assistant 2010-2012
IUG, Palestine

I was a teaching assistant for the following modules: Digital Signal Processing, Digital Communications, Image Processing, Electromagnetism and Probability Theory&Statistics.

RESEARCH INTERESTS

My research interests lie at the intersection of networked systems and protocols, information theory and statistical modelling.

During my PhD studies, I have developed SCDP, an efficient data transport protocol for data centres. SCDP builds on RaptorQ coding and is tailored for one-to-many and many-to-one data transfer patterns, which are extremely common in modern data centres. SCDP does so without compromising on efficiency for short and long unicast flows. SCDP achieves this by integrating RaptorQ codes with receiver-driven data transport, in-network packet trimming and Multi-Level Feedback Queuing (MLFQ); (1) RaptorQ codes enable efficient one-to-many and many-to-one data transport; (2) on top of RaptorQ codes, receiver-driven flow control, in combination with in-network packet trimming, enable efficient usage of network resources as well as multi-path transport and packet spraying for all transport modes. Incast and Outcast are eliminated; (3) the systematic nature of RaptorQ codes, in combination with MLFQ, enable fast, decoding-free completion of short flows. The work is in collaboration with Prof Crowcroft (University of Cambridge) and has appeared as a poster in ACM SIGCOMM 2018 and is currently under revision for IEEE/ACM Transactions on Networking.

In collaboration with Dr Clegg (QMUL), we have conducted one of the most comprehensive studies on Internet traffic in the literature and is unique with respect to the spatial and temporal diversity of the studied Internet traces. Through rigorous statistical analysis of publicly available traces, we showed that the log-normal distribution is the best fit for Internet traffic volume. The work has major impact on designing models for researching networking problems, SLA provisioning and 95th-percentile pricing for ISPs. The work was published (reviewed in top 5% amongst 1464 papers) at the flagship IEEE networks conference with a follow-up submission in IEEE/ACM Transactions on Networking.

As part of my work with Mavis Broadcast Ltd, I am researching reliable video streaming protocols with the ability to run optimised digital signal processing mechanisms on cloud streamed data. This is crucial for broadcasters who are challenged with the data transport often not being efficient for high-end broadcast applications.

PUBLICATIONS

- M. Alasmar, J. Crowcroft and G. Parisis, “SCDP: Systematic Rateless Coding for Efficient Data Transport in Data Centres”, IEEE/ACM Transactions on Networking, 2020 (under revision).
- Mohammed Alasmar, George Parisis, Richard Clegg and Nickolay Zakhleniuk, “A Diverse and Longitudinal Study of Internet Traffic Volumes”, IEEE/ACM Transactions on Networking, 2020 (submitted).
- Mohammed Alasmar, George Parisis, “Evaluating Modern Data Centre Transport Protocols in OMNeT++/INET”, In Proceedings of the 6th OMNeT++ Community Summit, 2019, Hamburg, Germany.
- Mohammed Alasmar, George Parisis, Richard Clegg and Nickolay Zakhleniuk, “On the Distribution of Traffic Volumes in the Internet and its Implications”, In Proceedings of IEEE INFOCOM 2019, Paris, France.
- Mohammed Alasmar, George Parisis and Jon Crowcroft, “Polyraptor: Embracing Path and Data Redundancy in Data Centres for Efficient Data Transport”, In Proceedings of ACM SIGCOMM 2018, Budapest, Hungary (poster session).

RESEARCH ACTIVITIES

- Reviewer for IEEE INFOCOM 2019 and 2020.

- Presentation of my PhD research at the Next Generation Networking and Multi-Service Networks workshop, 2018 and 2019.
- Presentation of poster at ACM SIGCOMM, 2018.
- Presentation of research paper at IEEE INFOCOM, 2019.
- Presentation of simulation model paper at OMNeT++ Summit, 2019.
- Presentation of a Research Buddy Scheme at the SAGE Research Hive, University of Sussex, 2018.
- Shadow Program Committee for ACM Internet Measurement Conference (IMC), 2018.
- Finalist (5 out of 47 participants) in the Student Research Competition (SRC) held at SIGCOMM, 2018.
- Participation in the organisation of the 16th Mathematics of Networks workshop at the University of Sussex in 2017.

HONOURS AND AWARDS

- Best In-session Presentation Award, IEEE INFOCOM, 2019.
- First prize in the Maths Challenge that was organised by 'rep2rep' research group at Sussex and Cambridge universities, 2019.
- Travel grant from IEEE INFOCOM to attend the conference, 2019.
- Travel grants from ACM SIGCOMM to attend the conference, 2016 and 2018.
- Prize for best PGR project poster, School of Engineering and Informatics, University of Sussex, 2017.
- Associate Fellowship of the Higher Education Academy in the UK, 2016.
- Full PhD Scholarship, School of Engineering and Informatics, University of Sussex, 2016.
- Turkish Ministry of Education fund for an exchange program at Anadolu University, 2014.
- Telecom Prize for best performance in my master's course, University of Essex, 2013.
- HESPAL scholarship from the British Council in Palestine to study for a MSc degree in Telecommunications and Information Systems a the University of Essex, UK, 2012.

SKILLS

Languages	Arabic (native), English (excellent), Turkish (very good), Dutch (beginner)
Software	NS-3, OMNeT++, OptiSystem, LabVIEW, OrCAD, Protus, Arduino IDE, Git, Photoshop, LaTeX, Microsoft Office, Video Editing, Linux command-line, Wireshark.
Programming languages	C/C++, Java, Swift, MATLAB, mikroC, Python

ACADEMIC REFEREES

- Dr George Parisis, Senior Lecturer at Informatics Department, University of Sussex, UK.
- Prof Ian Wakeman, Head of the Department of Informatics, University of Sussex, UK.
- Dr Nickolay Zakhleniuk, Computer Science Department, University of Essex, UK.
- Prof David Crawford, Computer Science Department, University of Essex, UK.
- Dr Martin Fleury, Computer Science Department, University of Essex, UK.