Xenofon Foukas

Curriculum Vitae

✆ (+44) 7399880008
✉ foukas.xenofon@gmail.com

Education

Oct 2013 - July 2018
PhD in Wireless Networks and Mobile Systems, *School of Informatics, The University of Edinburgh, Edinburgh, United Kingdom*.
Thesis:"Towards a Programmable and Virtualized Mobile Radio Access Network Architecture"
Supervisor: Reader Mahesh K. Marina

Oct 2012 - Sep. 2013
MSc in Advanced Computing, *Department of Computing, Imperial College London, London, United Kingdom*, GPA: **Distinction** (86/100).
Distinguished thesis project: "Sampling in a Large Network"
Supervisor: Prof. Alexander L. Wolf

Sept. 2007 - Feb. 2012
BSc in Computer Science, *Department of Informatics, Athens University of Economics and Business, Athens, Greece*, GPA: **Distinction** (9.44/10).
Distinguished thesis project: "k-LWPR: Speeding up LWPR through clustering"
Supervisor: Prof. Michalis Vazirgiannis

Professional Experience

March 2019 - present
Postdoctoral Researcher, *Microsoft Research Cambridge, Cambridge, United Kingdom*.
Working in the team of Dr. Bozidar Radunovic on developing **efficient, scalable and intelligent Cloud RAN solutions.**

April 2018 - February 2019
Research Associate, *School of Informatics, The University of Edinburgh, Edinburgh, United Kingdom*.
Worked in the research group of Dr. Mahesh K. Marina, focusing on problems relevant to the **5G network architecture** & **network slicing**. **Co-supervised** two PhD students (Mohamed M. Kassem, Rajkarn Singh), one honours student (Alan Plascinskas) and one intern (Fox Foster), working closely with them on a daily basis.

May 2016 - April 2017
Research Assistant, *School of Informatics, The University of Edinburgh, Edinburgh, United Kingdom* and *Institute of Informatics and Telecommunications, NCSR "Demokritos", Athens, Greece*.
Worked in the PACER project, which was part of the second open call for experimentation of the European FP7 FLEX project (FIRE LTE testbeds for open Experimentation). Developed a **prototype open source Software-Defined Radio Access Network (RAN) platform** called FlexRAN.

July 2013 - Dec. 2014
Marie-Curie Early Stage Researcher, *Institute of Informatics and Telecommunications, NCSR "Demokritos", Athens, Greece*.
Early stage researcher for the FP7 GREENET project on green wireless networks. Worked on developing **algorithms for energy efficient vertical handovers**, focusing on the energy efficiency of the user equipment.

July 2012 - Sep. 2012
Research Assistant, *Department of Computing, Athens University of Economics and Business, Athens, Greece*.
Worked under the supervision of Prof. Michalis Vazirgiannis on developing **data collection algorithms** for the generation of a complete lexicon of Greek streets and settlements.

Nov. 2011 - Feb. 2012	**Intern**, *Intracom Telecoms, Athens, Greece.* Internship under the supervision of Dr. Sergios Soursos – Developed a **simulation model** for a **smart flooding algorithm** for content-based networks using OMNeT++.

Research Interests

My research broadly falls under the domain of *networks and distributed systems* and in particular within *wireless and mobile networks and cloud computing*. My recent and on-going research is on the following topics, focusing mostly on aspects relevant to next-generation (5G) mobile networks:

- 5G system architecture & network slicing
- Cloud-RAN architecture & performance
- Multi-Access Edge Computing (MEC)
- Network Functions Virtualization (NFV) & Software-Defined Networking (SDN)
- Spectrum sharing
- Network management & orchestration
- Testbeds and large scale experimentation

Publications

2018 **X. Foukas**, M. K. Marina and K. Kontovasilis, "**Iris: Deep Reinforcement Learning Driven Shared Spectrum Access Architecture for Indoor Neutral-Host Small Cells**", Submitted in *IEEE JSAC Special Issue on Network Softwarization & Enablers*, [arXiv:1812.06183]

2018 **X. Foukas**, F. Sardis, F. Foster, M. K. Marina, M. A. Lema and M. Dohler, "**Experience Building a Prototype 5G Testbed**", In *Proc. 1st International Workshop on Experimentation and Measurements in 5G (EM-5G) in conjunction with ACM CoNEXT 2018*,

2018 **X.Foukas**, K. Kontovasilis and M. K. Marina, "**Short-Range Cooperation of Mobile Devices for Energy-Efficient Vertical Handovers**", In *Wireless Communications and Mobile Computing (WCMC) Journal Special Issue on Green Computing and Communications for Smart Portable Devices*,

2017 **X. Foukas**, M. K. Marina and K. Kontovasilis, "**Orion: RAN Slicing for a Flexible and Cost-Effective Multi-Service Mobile Network Architecture**", In *Proc. ACM MobiCom'17*

2017 G. Tsoukaneri, **X. Foukas** and M. K. Marina, "**ASPIS: A Holistic and Practical Mechanism for Efficient MTC Support over Mobile Networks**", In *Proc. IEEE Mobile and Ad Hoc Sensor Systems (MASS'17)*.

2017 **X. Foukas**, G. Patounas, A. Elmokashfi and M. K. Marina, "**Network Slicing in 5G: Survey and Challenges.**", *IEEE Communications Magazine*, 55(5), pp.94-100.

2016 **X. Foukas**, N. Nikaein, M. M. Kassem, M. K. Marina and K. Kontovasilis, "**FlexRAN: A Flexible and Programmable Platform for Software-Defined Radio Access Networks**", In *Proc. ACM CoNEXT'16*.

2016 S. Sivaprakash, **X. Foukas**, M. K. Marina, "**VALI: An SDN-based management framework for public wireless LANs (Poster)**", In *ACM MobiCom'16*.

2015 **X. Foukas**, K. Kontovasilis and M. K. Marina, "**Exploiting Short-Range Cooperation for Energy Efficient Vertical Handover Operations**", In *Proc. 11th International Conference on Network and Service Management (CNSM'15)*.

2015	**X. Foukas**, M. K. Marina and K. Kontovasilis, "**Software Defined Networking Concepts**", Appeared as a *chapter in the book on Sofware Defined Mobile Networks (SDMN): Beyond LTE Network Architecture*.
2015	**X. Foukas**, A. Carzaniga and A. L. Wolf, "**Measuring the Mixing Time of a network**", In *Proc. 2015 IEEE Conference on Computer Communications (INFOCOM)*.
2014	**X. Foukas**, D. Loukatos, K. Kontovasilis and H. Marques, "**Energy Requirements of Secure Vertical Handover Operations in the 802.21a Framework**", In *Proc. IEEE CAMAD 2014*.

Talks (Invited/Conference)

Dec. 2018	**1st International Workshop on Experimentation and Measurements in 5G (EM-5G) in conjunction with ACM CoNEXT 2018**, *Heraklion, Greece*, *"Experience Building a Prototype 5G Testbed"*.
April 2018	**NEC Laboratories Europe**, *Heidelberg, Germany*, *"Towards a Programmable and Virtualized Mobile Radio Access Network Architecture"*, **Invited Talk**.
Nov. 2017	**King's College London**, *London, United Kingdom*, *"Virtualization and Programmability of Radio Access Networks in 5G"*, **Invited Talk**.
Oct. 2017	**ACM MobiCom**, *Snowbird, Utah, USA*, *"Orion: RAN Slicing for a Flexible and Cost-Effective Multi-Service Mobile Network Architecture"*.
June 2017	**Multi-Service Networks workshop**, *Abingdon, United Kingdom*, *"Towards Programmable and Virtualized Radio Access Networks"*.
Dec. 2016	**ACM CoNEXT**, *Irvine, California, USA*, *"FlexRAN: A Flexible and Programmable Platform for Software-Defined Radio Access Networks"*.
Dec. 2016	**NCSR "Demokritos"**, *Athens, Greece*, *"Introducing Programmability in Radio Access Networks"*, **Invited Talk**.
Nov. 2015	**CNSM 2015**, *Barcelona, Spain*, *"Exploiting Short-range Cooperation for Energy Efficient Vertical Handover Operations"*.
April 2015	**IEEE INFOCOM**, *Kowloon, Hong Kong*, *"Measuring the Mixing Time of a Network"*.
Dec 2014	**IEEE CAMAD**, *Athens, Greece*, *"Energy Requirements of Secure Vertical Handover Operations in the 802.21a Framework"*.

Honors and Awards

2018	Selected by *The University of Edinburgh* for *nomination* to **ACM Doctoral Dissertation** and **BCS Distinguished Dissertation Awards**.
2017	**Best demonstration award** for "Orion: A RAN Slicing System" in *ACM MobiCom 2017*.
2017	**Finalist at *Lime Micro Hackathon*** organized by the *BT Infinity Lab* for "Orion: RAN Slicing System over LimeSDR" (*8 finalists out of 60 registrants*). Selection criterion based on the significance of impact and disruption of the traditional mobile network approach.
2017	Received the **Brendan Murphy Prize** as an outstanding UK PhD researcher in the networks and systems areas in *MSN 2017 UK Academic Meeting on Systems and Networks*.
2015	Received **student travel grant** for presenting the paper titled *"Exploiting Short-Range Cooperation for Energy Efficient Vertical Handover Operations"* in *CNSM 2015*.
2012	Received **departmental scholarship** on *academic distinction* by the *Department of Computing* at *Imperial College London*.

2012	Received **graduation award** on *academic distinction* by the *Department of Informatics* at the *Athens University of Economics and Business*. Ranked **1st in a class of about 250 students** and **3rd in the whole department since its founding in 1983**.
2007	Received **award on high performance** in national exams by the *Department of Informatics* at the *Athens University of Economics and Business* (*ranked 4th*).

Grant Writing Experience

2019	**Co-Investigator** in EPSRC proposal for "5G+IntelliCast" project under chist-era program on Smart Distribution of Computing in Dynamic Networks (pending).
2016 - 2017	Contributed in writing **successful** proposal for "PACER" project, which was part of the second open call for experimentation on the European FP7 FLEX project.

Teaching Experience

2014 - present	**Co-supervision/mentoring** of three PhD, one MRes and two honours students, *School of Informatics, The University of Edinburgh, Edinburgh, United Kingdom*
2016	**Seminars** on Software-Defined Networking and Network Functions Virtualization in the context of 5G mobile networks, *Institute of Informatics and Telecommunications, NCSR "Demokritos", Athens, Greece*
2009 - 2010	**Teaching Assistant** in the course of Numerical Analysis, *Department of Informatics, Athens University of Economics and Business, Athens, Greece*

Professional Service

TPC Member	IEEE SECON 2019, ACM WiNTECH 2018, IEEE EuCNC 2017-2019, VTC 2019, GIIS 2018
Reviewer	*Invited reviewer* for high-impact journals including IEEE/ACM Transactions on Networking, IEEE JSAC, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications.

Open Source Contributions

FlexRAN	Main developer of the open source FlexRAN project for Software-Defined Radio Access Networks (http://networks.inf.ed.ac.uk/flexran).
OAI	Contributor to the OpenAirInterface (OAI) open source project, writing code for the MAC and the RRC layer of the 4G/5G Radio Access Network.

Languages

English	Fluent
Greek	Native Speaker
German	Intermediate
French	Basic