

# Dr Philippos Isaia

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## PERSONAL PROFILE

Adaptable and skilful computer science researcher specialized in the area of Software Defined Networking (SDN). Experienced in working both independently and in groups. Ability to meet deadlines and perform problem analysis. Years of teaching experience both as leading teacher as well as a teaching assistant. Experience in BSc and MSc students' supervision, as well as some supervision for first-year PhD candidates. Eager to learn and research emerging topics in the area of computing.

## PUBLICATIONS

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"Performance benchmarking of SDN experimental platforms", Philippos Isaia and Lin Guan, 2016 IEEE NetSoft Conference and Workshops (NetSoft), Seoul, South Korea, 2016, pp. 116-120.

"Distributed Mininet Placement Algorithm for Fat-Tree Topologies", Philippos Isaia and Lin Guan, 2017 IEEE 25<sup>th</sup> International Conference on Network Protocols (ICNP), Toronto, Canada, 2017.

## EDUCATION

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**2012-2018 - PhD in Computer Science**, Loughborough University

**Thesis Title:** Improving The Performance of Software Defined Networks Using Dynamic Flow Installation and Management Techniques

**Brief Synopsis:** This thesis explores one of the main SDN challenges, which is the low performance of SDN's centralised controller that occurs during high traffic loads and CPU overload. With the use of OpenFlow, a dynamic flow installation and management algorithm (OFPE) is proposed, which allows the controller to dynamically add and adjust flow table rules in order to reduce packet delay as well as out of order packets. The proposed algorithm prevents the controller's CPU load from affecting the network's performance which results in less end-to-end delay, less out of order packets and higher network stability. Further to the controller's proposed dynamic flow installation and management algorithm, an additional module to the algorithm, dynamically detects network topology in a multi-switch environment. The topology awareness allows the controller to install flow table rules to form routes and increase network's performance and the overall Quality of Service (QoS).

**2009-2012 - BSc (Hons) Computer Science**, Loughborough University

Modules Include:

- Operating Systems and Networks
- AI Methods
- Agent-Based Systems
- Implementation of Programming Languages
- Object Oriented Programming
- Algorithm Analysis
- Data Mining
- E-Commerce Security
- Computer Vision
- 2D Graphics

**Final Year Project Synopsis:** This project explores the usage and effectiveness of current systems as well as the necessity for the creation of a mobile device application for Loughborough University students. The initial task was to identify user requirements and outline the developing procedure of the application based on the iOS Platform. The project continues with the design and development of “iPort”, an iOS application for the students of Loughborough University. The application allows the students to access their modules, timetables, library, campus map as well as printing services.

**2008-Ongoing - BSc Astronomy** (Distance Learning, Part Time), University of Central Lancashire

Modules Include:

- Introduction to Astronomy
- Introduction to Cosmology
- Introduction to Astrobiology
- IT for Astronomy
- Sun, Earth and Climate
- Great Astronomers in History
- The Milky Way
- Galaxies Beyond the Milky Way
- Energy, Matter & The Universe
- Ultraviolet, Optical and Infrared Astronomy

**2000-2007 - The GC School of Careers High School**

**A-Levels:** Mathematics (Pure & Statistics), Chemistry, Physics, Modern Greek

**O-Levels:** Mathematics, Computing, Chemistry, Physics, Biology, Modern Greek

## **WORK EXPERIENCE**

**2017-2018 - Leading Teacher**, Loughborough University

Worked as the leading teacher for two postgraduate modules.

- Internet Systems
- Network Modelling and Performance

**2012-2018 - Teaching Assistant**, Loughborough University

Worked as a teaching assistant (Labs and Tutorials) for several undergraduate and postgraduate taught modules.

- Operating Systems, Networks and the Internet
- Programming for the WWW
- Networks Modelling and Performance
- Object Oriented Programming
- Introduction to Programming
- Server Side Programming

**2010-2011 Lufbra Hellenic Society Web Designer**

Duties involved designing the website, as well as organizing events.

## **RESEARCH INTERESTS**

My main research interests are in emerging technologies such as SDN and the field of computer networks in general. I have collaborated with other PhD candidates in knowledge transfer from traditional networking applications to emerging technologies such as Software Defined Systems (SDS), Internet of Things (IoT) and Vehicular Ad-hoc Networks (VANETs).

## **SKILLS**

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- Research**            Researched hundreds of conference and journals papers, library-based resources as well as scientific magazines.
- Communication**    Gave a number of presentations to several Networking Groups, IEEE NetSoft and IEEE ICNP Conferences as well as University-wide seminars in the area of Computer Networks and emerging technologies. Due to the participation in several research teams, team projects, assignments and essays during my PhD as well as in my undergraduate degree, I enhanced my verbal and written communication skills.
- Problem Solving**     During the PhD, I have solved several problems through research, analytical modelling, simulation, emulation as well as testbed experimentation.
- Teaching**            Leading teacher in two Master's degree modules as well as a teaching assistant in several undergraduate modules. In addition, I have supervised several undergraduate BSc final year students as well as postgraduate MSc students.
- Programming**       I am familiar with programming principles and techniques of various languages including Python, Java, Objective-C, C++, PHP, JavaScript, Haskell and Prolog.

## **CONFERENCES**

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- 2017    IEEE 25<sup>th</sup> International Conference on Network Protocols (ICNP), Toronto, Canada
- 2016    IEEE NetSoft Conference and Workshops, Seoul, South Korea
- 2013    The 29<sup>th</sup> UK Performance Engineering Workshop (UKPEW), Loughborough, UK

## **MEMBERSHIPS**

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- British Computer Society (BCS)
- Cyprus Computer Society (CCS)
- Google Play Developer
- iOS Developer Program

## **REFEREES**

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### **Dr Lin Guan**

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Haslegrave Building N.3.27  
Loughborough University  
Loughborough, LE11 3TU

### **Dr Iain Phillips**

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