Paul H. Patras

School of Informatics, The University of Edinburgh, 10 Crichton Street, Edinburgh, EH8 9AB, UK.
Phone: +44 (0) 131 650 4408. E-mail: `ppatras@inf.ed.ac.uk`.
Web: `http://homepages.inf.ed.ac.uk/ppatras`
Year of birth: 1982. Place of birth: Bistrita, Romania.

Research Interests

mobile intelligence; performance optimisation in mobile networks; security and privacy

Employment

2019–present, Reader (Associate Professor) and Chancellor's Fellow, School of Informatics,
The University of Edinburgh, UK; Member of the Institute for Computing Systems Architecture (ICSA).
2013–2019, Lecturer (Assistant Professor) and Chancellor's Fellow, School of Informatics,
The University of Edinburgh, UK; Member of the Institute for Computing Systems Architecture (ICSA).
2011–2013, Research Fellow, Hamilton Institute, National University of Ireland Maynooth.
2007–2011, Research Assistant, IMDEA Networks Institute, Madrid, Spain.
2006–2007, Deployment Engineer, Alcatel-Lucent, Romania / France.

Honorary Positions

2017, Mar.–May, Visiting Professor, Dept of Information Engineering, University of Brescia, Italy.
2016, July–Aug., Visiting Researcher, College of Computer and Information Science, Northeastern University, USA.
2016, May–June, Visiting Researcher, Secure Mobile Networking Lab, TU Darmstadt, Germany.
2015, Apr.–June, Visiting Professor, Department of Information Engineering, University of Brescia, Italy.
2010, Jan.–July, Visiting Researcher, Networks Group, Rice University, USA.

Other Affiliations

2020–present, Networking & Systems Research Theme Leader, Scottish Informatics and Computer Science Alliance.
2020–present, Leader, Mobile Intelligence Lab, Edinburgh, UK.
2017–present, Leader, Informatics Internet of Things Research Programme, Edinburgh, UK.
2014–present, Academic Member, Security & Privacy Group, Edinburgh, UK.
2019–present, UKRI Centre for Doctoral Training in Biomedical AI, Edinburgh, UK.
2018–2019, Academic Member, EPSRC Centre for Doctoral Training in Data Science, Edinburgh, UK.
2013–2019, Academic Member, EPSRC Centre for Doctoral Training in Pervasive Parallelism, Edinburgh, UK.
2014–2015, Research Collaborator, Li-Fi R&D Centre, Edinburgh, UK.

Education

2011, Ph.D., Telematics Engineering (cum laude), University Carlos III of Madrid, Spain.
Advisor: Prof. Albert Banchs; Dissertation: "Control-Theoretic Adaptive Mechanisms for Performance Optimization of IEEE 802.11 WLANs: Design, Implementation and Experimental Evaluation".
2008, M.Sc., Telematics Engineering (cum laude), University Carlos III of Madrid, Spain.
2006, Dipl.Eng., Telecommunications (cum laude), Technical University of Cluj-Napoca, Romania; Dissertation project at the Polytechnic University of Catalonia (UPC), Barcelona, Spain.

Distinctions

2020, Nominated "Supervisor of the Year" in the Edinburgh University Students' Association Teaching Awards 2020.
2018, Best student paper award – R. Li, C. Zhang, P. Cao, P. Patras, J. S. Thompson, "DELMU: A Deep Learning Approach to Maximising the Utility of Virtualised Millimetre-Wave Backhauls", in Proceedings International Conference on Machine Learning for Networking (MLN), Paris, France.
2018, Supervisor of Rui Li, 'Brendan Murphy' awardee at the 30th Annual UK Multiservice Networks (Cosener's) Workshop, Abingdon, UK.
2017, STEM Ambassador Award.
2016, Supervisor of Ronan Turner, 'Highly Commended' in the Undergraduate Awards for "AlphaAP: Achieving Weighted Throughput in Virtualised WLANs.".
2017, 2015 Elsevier Computer Communications Outstanding Reviewer.
2012, Outstanding Ph.D. Award, University Carlos III of Madrid.
2012, Best paper award nomination – P. Patras, H. Qi, D. Malone, "Exploiting the Capture Effect to Improve WLAN Throughput", In Proceedings of IEEE 13th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM), San Francisco, USA.
2011, IEEE Communications Letters Exemplary Reviewer.

2008, Author of the only M.Sc. dissertation receiving honours in the Telematics Engineering department of University Carlos III of Madrid.

Publications

Journal Papers

1. C. Zhang, R. Li, W. Kim, D. Yoon, and **P. Patras**, "Driver Behavior Recognition via Interwoven Deep Convolutional Neural Nets with Multi-stream Inputs," IEEE Access, vol. 8, Oct. 2020.
2. C. Fiandrino, C. Zhang, **P. Patras**, A. Banchs, and J. Widmer, "A Machine Learning-based Framework for Optimizing the Operation of Future Networks," in IEEE Communications Magazine (Data Science and Artificial Intelligence for Communications Series), vol. 58, no. 6, pp. 20–25, June, 2020.
3. R. Li, **P. Patras**, "Max-Min Fair Resource Allocation in Millimetre-Wave Backhauls", IEEE Transactions on Mobile Computing, vol. 18, no. 8, pp. 1879–1895, Aug. 2020.
4. C. Zhang, **P. Patras**, H. Haddadi, "Deep Learning in Mobile and Wireless Networking: A Survey", IEEE Communications Surveys & Tutorials, vol. 21, no. 3, third quarter, pp. 2224–2287, Mar. 2019.
5. A. Garcia-Saavedra, **P. Patras**, V. Valls, X. Costa-Perez, D. J. Leith, "ORLA/OLAA: Orthogonal Coexistence of LAA and WiFi in Unlicensed Spectrum", *IEEE Transactions on Networking*, vol. 26, no. 6, pp. 2665–2678, Dec. 2018.
6. F. Gringoli, **P. Patras**, C. Donato, P. Serrano, Y. Grunenberger, "Performance Assessment of Open Software Platforms for 5G Prototyping", *IEEE Wireless Communications*, vol. 25 , no. 5 , pp. 10–15, Nov. 2018.
7. N. Facchi, F. Gringoli, **P. Patras**, "Maximising the Utility of Enterprise Millimetre-Wave Networks", *Elsevier Computer Communications*, vol. 119, pp. 29–42, Apr. 2018.
8. J. Classen, D. Wegemer, **P. Patras**, T. Spink, and M. Hollick, "Anatomy of a Vulnerable Fitness Tracking System: Dissecting the Fitbit Cloud, App, and Firmware", in Proceedings of the ACM on *Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)* vol. 2, no. 1, Mar. 2018. Presented at UbiComp 2018.
9. N. Facchi, F. Gringoli, D. Malone, **P. Patras**, "Imola: A Decentralised Learning-driven Protocol for Multi-hop White-Fi", *Elsevier Computer Communications*, vol. 105, pp. 157–168, June 2016.
10. **P. Patras**, H. Feghhi, D. Malone, D. Leith, "Policing 802.11 MAC Misbehaviours", *IEEE Transactions on Mobile Computing*, vol. 15, no. 7, pp. 1728–1742, July 2016.
11. **P. Patras**, A. Garcia-Saavedra, D. Malone, D. Leith, "Rigorous and Practical Proportional-fair Allocation for Multi-rate Wi-Fi", *Ad Hoc Networks*, vol. 36, Part 1, pp. 21–34, Jan. 2016.
12. **P. Patras**, H. Qi, D. Malone, "Mitigating Collisions through Power-Hopping to Improve 802.11 Performance", *Elsevier Pervasive and Mobile Computing*, vol. 11, pp.41–55, Apr. 2014.
13. P. Serrano, **P. Patras**, A. Mannocci, V. Mancuso, A. Banchs, "Control Theoretic Optimization of 802.11 WLANs: Implementation and Experimental Evaluation", *Elsevier Computer Networks*, vol. 57, no. 1, pp. 258–272, Jan. 2013.
14. P. Serrano, A. de la Oliva, **P. Patras**, V. Mancuso, A. Banchs, "Greening Wireless Communications: Status and Future Directions", *Elsevier Computer Communications*, vol. 35, no. 14, pp. 1651–1661, Aug. 2012.
15. A. Banchs, P. Serrano, **P. Patras**, M. Natkaniec, "Providing Throughput and Fairness Guarantees in Virtualized WLANs through Control Theory", *ACM/Springer Mobile Networks and Applications (MONET)*, vol. 17, no. 4, pp. 435–446, Aug. 2012.
16. **P. Patras**, A. Banchs, P. Serrano, "A Control Theoretic Scheme for Efficient Video Transmission over IEEE 802.11e EDCA WLANs", *ACM Transactions on Multimedia Computing, Communications and Applications (TOMM)*, vol. 8, no. 3, pp. 29:1–29:23, July 2012.
17. **P. Patras**, A. Banchs, P. Serrano, A. Azcorra "A Control Theoretic Approach to Distributed Optimal Configuration of 802.11 WLANs", *IEEE Transactions on Mobile Computing*, vol. 10, no. 6, pp. 897–910, June 2011.
18. P. Serrano, A. Banchs, **P. Patras**, A. Azcorra, "Optimal Configuration of 802.11e EDCA for Real-Time and Data Traffic", *IEEE Transaction on Vehicular Technology*, vol. 59, no. 5, pp. 2511–2528, June 2010.
19. **P. Patras**, A. Banchs, P. Serrano, "A Control Theoretic Approach for Throughput Optimization in IEEE 802.11e EDCA WLANs", *ACM/Springer Mobile Networks and Applications (MONET)*, vol. 14, no. 6, pp. 697–708, Dec. 2009.

Refereed Conference Papers

20. A. Diallo and **P. Patras**, "Adaptive Clustering-based Malicious Traffic Classification at the Network Edge", to appear in *Proceedings of IEEE International Conference on Computer Communications (IEEE INFOCOM)*, May 2021.
21. C. Zhang, M. Fiore, I. Murray, **P. Patras**, "CloudLSTM: A Recurrent Neural Model for Spatiotemporal Point-cloud Stream Forecasting", in *Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*, Feb. 2021.
22. J. Sanz Maroto, H. Liu, and **P. Patras**, "On the Struggle Bus: A Detailed Security Analysis of the m-tickets App", in *Proceedings of Information Security Conference (ISC)*, Dec. 2020.

23. C. Zhang, X. Costa-Perez, and **P. Patras**, "Tiki-Taka: Attacking and Defending Deep Learning-based Intrusion Detection Systems", in *Proceedings of ACM Cloud Computing Security Workshop (CCSW)*, Nov. 2020.

24. C. Zhang, M. Fiore, C. Ziemlicki, and **P. Patras**, "Microscope: Mobile Service Traffic Decomposition for Network Slicing as a Service", in *Proceedings of Annual International Conference on Mobile Computing and Networking (ACM MobiCom)*, Sept. 2020

25. O. Ojo, A. Garcia-Agundez, B. Girault, H. Hernandez, E. Cabana, A. Garcia, P. Arabshahi, C. Baquero, P. Casari, E. J. Ferreira, D. Frey, C. Georgiou, M. Goessens, A. Ishchenko, I. Sikorsky, E. Jimenez, O. Kebkal, R. Lillo, R. Menezes, N. Nicolaou, A. Ortega, **P. Patras**, J. C. Roberts, E. Stavrakis, Y. Tanaka, and A. Fernandez Anta, "CoronaSurveys: Using Surveys with Indirect Reporting to Estimate the Incidence and Evolution of Epidemics", in *Proceedings of KDD Humanitarian Mapping Workshop*, Aug. 2020.

26. M. Cominelli, **P. Patras**, and F. Gringoli, "One GPU to Snoop Them All: a Full-Band Bluetooth Low Energy Sniffer," in *Proceedings of IEEE Mediterranean Communication and Computer Networking Conference (MedComNet)*, June 2020.

27. M. Cominelli, F. Gringoli, M. Lind, **P. Patras** and G. Noubir, "Even Black Cats Cannot Stay Hidden in the Dark: Full-band De-anonymization of Bluetooth Classic Devices," in *Proceedings of IEEE Symposium on Security and Privacy (S&P)*, San Francisco, CA, US, 2020.

28. M. Cominelli, **P. Patras**, F. Gringoli, "Dead on Arrival: An Empirical Study of The Bluetooth 5.1 Positioning System", in *Proceedings of the ACM International Workshop on Wireless Network Testbeds, Experimental evaluation & CHaracterization (WiNTECH)*, Los Cabos, Mexico, Oct. 2019.

29. C. Zhang, M. Fiore, **P. Patras**, "Multi-Service Mobile Traffic Forecasting via Convolutional Long Short-Term Memories", in *Proceedings of IEEE International Symposium on Measurements and Networking*, Catania, Italy, July 2019.

30. H. Liu, T. Spink, **P. Patras**, "Uncovering Security Vulnerabilities in the Belkin WeMo Home Automation Ecosystem", in *Proceedings of IEEE Pervasive Computing (PerCom) Workshops*, Mar. 2019.

31. R. Li, C. Zhang, R. Stanica, F. Valois, **P. Patras**, "Learning Driven Mobility Control of Airborne Base Stations in Emergency Network", in *ACM SIGMETRICS Performance Evaluation Review*, Dec. 2018.

32. R. Li, C. Zhang, P. Cao, **P. Patras**, J. S. Thompson, "DELMU: A Deep Learning Approach to Maximising the Utility of Virtualised Millimetre-Wave Backhauls", in *Proceedings of the International Conference on Machine Learning for Networking (MLN)*, Paris, France, November 2018.

33. C. Zhang, **P. Patras**, "Long-Term Mobile Traffic Forecasting Using Deep Spatio-Temporal Neural Networks", in *Proceedings of the ACM International Symposium on Mobile Ad Hoc Networking and Computing (MobiHoc)*, Los Angeles, USA, June 2018.

34. F. Gringoli, N. Ali, F. Guerrini, **P. Patras**, "A Flexible Framework for Debugging IoT Wireless Applications", in *Proceedings of the IEEE International Workshop on Metrology for Industry 4.0 & IoT*, Brescia, Italy, Apr. 2018.

35. C. Zhang, X. Ouyang, **P. Patras**, "ZipNet-GAN: Inferring Fine-grained Mobile Traffic Patterns via a Generative Adversarial Neural Network", in *Proceeding of the 13th International Conference on Emerging Networking Experiments and Technologies (ACM CoNEXT)*, Seoul/Incheon, South Korea, Dec. 2017.

36. H. Fereidooni, J. Classen, T. Spink, **P. Patras**, M. Miettinen, A.-R. Sadeghi, M. Hollick, M. Conti, "Breaking Fitness Records without Moving: Reverse Engineering and Spoofing Fitbit", in *Proceedings of the 20th International Symposium on Research in Attacks, Intrusions and Defenses (RAID)*, Atlanta, GA, USA, Sept. 2017.

37. R. Li, **P. Patras**, "WiHaul: Max-Min Fair Wireless Backhauling over Multi-Hop Millimetre-Wave Links", in *Proceedings of the 3rd ACM Workshop on Hot Topics in Wireless (HotWireless)*, New York City, NY, USA, Oct. 2016.

38. C. Capretti, F. Gringoli, N. Facchi, **P. Patras**, "LTE/Wi-Fi Co-existence under Scrutiny: An Empirical Study", in *Proceedings of the ACM 10th International Workshop on Wireless Network Testbeds, Experimental evaluation & CHaracterization (WiNTECH)*, New York City, NY, USA, Oct. 2016.

39. G. H. Sim, R. Li, C. Cano, D. Malone, **P. Patras**, J. Widmer, "Learning from Experience: Efficient Decentralized Scheduling for 60GHz Mesh Networks", in *Proceedings of IEEE 17th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, Coimbra, Portugal, June 2016.

40. N. Facchi, F. Gringoli, D. Malone, **P. Patras**, "When Is the Right Time to Transmit in Multi-hop White-Fi?" (demo), in *Proceedings of IEEE 17th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, Coimbra, Portugal, June 2016.

41. D. Malone, H. Qi, D. Botvich, **P. Patras**, "802.11 Buffers: When Bigger is Not Better?", in *Proceedings of International Workshop on Wireless Access Flexibility (WiFlex)*, Springer Lecture Notes in Computer Science (LNCS), Kaliningrad, Russia, Sept. 2013.

42. H. Feghhi, **P. Patras**, D. Malone, "Practical Node Policing in 802.11 WLANs" (demo), in *Proceedings of IEEE 14th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, Madrid, Spain, June 2013.

43. A. Giannoulis, **P. Patras**, E. Knightly, "Mobile Access of Wide-Spectrum Networks: Design, Deployment and Experimental Evaluation", In *Proceedings of IEEE 32nd International Conference on Computer Communications (INFOCOM)*, Turin, Italy, Apr. 2013.

44. P. Salvador, S. Paris, C. Pisa, **P. Patras**, Y. Grunenberger, X. Perez-Costa, J. Gozdecki, "A modular, flexible and virtualizable framework for IEEE 802.11", In *Proceedings of Future Network & Mobile Summit*, Berlin, Germany, July 2012.

45. **P. Patras**, H. Qi, D. Malone, "Exploiting the Capture Effect to Improve WLAN Throughput", In *Proceedings of IEEE 13th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)*, San Francisco, USA, June 2012.

46. J. Lessmann, A. de la Oliva, C. Sengul, A. Garcia, M. Kretschmer, S. Murphy, **P. Patras**, "On the Scalability of Carrier-grade Mesh Network Architectures", In *Proceedings of Future Networks & Mobile Summit*, Warsaw, Poland, June 2011.

47. P. Serrano, **P. Patras**, X. Perez Costa, B. Gloss, D. Chieng, "A MAC Layer Abstraction for Heterogeneous Carrier Grade Mesh Networks", In *Proceedings of ICT Mobile Summit 2009, Santander*, Spain, June 2009.

48. **P. Patras**, A. Banchs, P. Serrano, "A Control Theoretic Framework for Performance Optimization of IEEE 802.11 Networks", In *Proceedings of IEEE 28th International Conference on Computer Communications (INFOCOM)*, Rio de Janeiro, Brazil, Apr. 2009.

49. A. Bikfalvi, **P. Patras**, C.M. Vancea, V. Dobrota, "The Management Infrastructure of a Network Measurement System for QoS Parameters", In *Proceedings of 14th International Conference on Software, Telecommunication and Computer Networks (SoftCOM)*, Split-Dubrovnik, Croatia, Oct. 2006.

Research Grants

- Microscope: Customisable software to drive intelligent network slicing
  £65,020, PI, Scottish Enterprise High-growth Spinout Programme (HGSP)
  Start date: 1/10/2020; end date: 31/03/2021

- Microscope: Customisable software to drive intelligent network slicing
  £35,822 PI, NxNW: Innovation to Commercialisation of University Research (ICURe) Programme
  Start date: 1/10/2020; end date: 7/01/2021

- OGMA: Deep Learning Powered Mobile Network Analytics, Security, and Control
  £134,418, PI, Cisco Research Center
  Start date: 1/9/2019; end date: 31/08/2023

- Connected Home Watch
  £175,000, PI, Arm Ltd.
  Start date: 1/9/2019; end date: 31/05/2023

- Automatic Threat Detection and Anomaly Counteraction in Home IoT
  £81,029, PI, Centre of excellence for sensing and imaging systems and Internet of Things (CENSIS) + Arm Ltd.
  Start date: 1/9/2019; end date: 31/08/2023

- Personalization of Transition Agent for Automated Driving System
  £69,486, PI, South Korean Electronics and Telecommunications Research Institute (ETRI) Research Grant
  Start date: 1/1/2018; end date: 30/11/2018

- Postdoctoral and Early Career Researcher Exchange (PECE) Bursary
  £5,300, PI, The Scottish Informatics and Computer Science Alliance (SICSA)
  Start date: 1/4/2018; end date: 31/8/2018

- Hardware Hacking Kit & Security and Privacy for mHealth and Wearables
  £5,996, PI & Co-I, GCHQ small grants
  Start date: 1/4/2018; end date: 31/8/2018

- Doctoral Fellowship
  €54,816, PI, Spanish Ministry of Science and Innovation
  Start date: 9/6/2009; end date: 28/2/2011

Internal University of Edinburgh funding:

- IoT & Cybersecurity Research Lab
  £43,800, PI, School of Informatics
  Start date: 1/1/2018; end date: 31/12/2018

- Riding Millimetre Radio Waves at Gigabit-per-second Speeds
  £5,990 PI, Edinburgh Development Trust, Innovation Initiative Grant
  Start date: 1/6/2014; end date: 31/5/2015

Collaborator on research grants:

- FLAVIA: FLexible Architecture for Virtualizable future wireless Internet Access
  €5,709,738, Collaborator, European Union FP7-2009-ICT-5
  Start date: 1/7/2010; end date: 30/6/2013

- CARMEN: CARrier grade MEsh Networks
  €6,222,269, Collaborator, European Union FP7-2008-ICT-1
  Start date: 1/1/2008; end date: 31/12/2010

Additional income through equipment and cloud platform credit donations from NVIDIA, Xilinx, Google, and Fitbit, amounting to £8,690.

Media Coverage

- Work with the CoronaSurveys team on monitoring and forecasting the incidence of Covid-19 using open surveys was featured in Business Wire, Bloomberg, BioSpace, Science X, Datanami, La Razon, Republica, Tele Madrid, Madri+d, Cope, Ambientum, Catalunya Vanguardista, Leganes Activo, Globo Rural, Publico, Surgiu, RedibInforma, Liverpool Noise.

- I gave an interview to Wired UK about the limitations of using Bluetooth for contact-tracing (17/04/2020).

- Security and privacy investigation of the Belkin WeMo ecosystem featured in The National, The Herald, Phys.org, Technology.org, ECN Mag, tekk.tv, qianjia.com, The Edinburgh Reporter, Edinburgh Live, Scottish Construction Now, Scottish Housing News.

  Forth Radio also ran a short interview with me about this work.

- Survey of research on deep learning in mobile and wireless networks covered in The Heart of the Machine, Trencent, NetEase, SINA, and Sohu.com.

- Research on the vulnerabilities of fitness trackers featured in The Times, The Telegraph, International Business Times, Huffington Post, New York Post, The Scotsman, STV News, Yorkshire Post, The Northern Echo, Channel News, Market Watch, SC Magazine, The Inquirer, CORDIS News, Homeland Security News Wire, China Press, Xinhua News, China Industrial Control Network, Shenzhen News Network, Photoelectric News Network, Hong Kong News, Indo-Asian News Service, The Economic Times, The Hindu, Businessworld India, The New Indian Express, The Pioneer, domain-b.com, HackRead, Techworm, V3, texnologia.net, Gears of Biz, Infosecurity Magazine, Third Age, Phys.org, ECN Mag, Digtial Journal, Gadgets & Wearables, DIGIT, EurekAlert!

  BBC Radio 4 Extra's Newsjack mentioned our work in their satire on fitness tracking (seas. 17, ep. 2).

  I also gave an interview to BBC Radio Scotland about our research for the Newsdrive show (12/04/2019).

Teaching

Spring, 2021, Spring 2020, Spring 2019, Spring 2018, The University of Edinburgh, UK,
INFR11146: Internet of Things Systems, Security and the Cloud (IoTSSC).

2019–20, The University of Edinburgh, UK,
INFR10077: Computing in the Classroom (co-taught with Judy Robertson).

Fall 2015, The University of Edinburgh, UK,
INFR09041: Undergraduate Research Practical.

Spring 2013, National University of Ireland Maynooth,
EE402: Computer & Communications Networks.

Spring 2008, Spring 2009, University Carlos III of Madrid, Spain,
Network Infrastructure (Network and E-Business Centred Computing M.Sc. Programme).

Postgraduate Students

2023 (expected), Aboubacar Diallo, "Connected Home Watch", Ph.D., The University of Edinburgh.
2021 (expected), Yini Fang, "Deep Learning driven Mobile Network Analytics, Security, and Control", M.Phil.,
The University of Edinburgh.
2023 (expected), Haoyu Liu, "Automatic Threat Detection and Anomaly Counteraction in Home IoT", Ph.D.,
The University of Edinburgh.
2020, Adalberto Guerra Cabrera, "IoT Data Anonymisation for Building Energy Analysis", M.Sc.,
The University of Edinburgh.
2020, Yuchong Xiao, "Spatio-Temporal Mobile Traffic Forecasting", M.Sc., The University of Edinburgh.
2020, Shaoyan Cui, "Network Anomaly Classification", M.Sc., in IoT Settings", M.Sc., The University of Edinburgh.
2020, Chaoyun Zhang, "Deep Neural Mobile Networking", Ph.D., The University of Edinburgh.
2019, Wei Tat Lee, "An Investigation into the Security and Privacy of Blood Pressure Monitors", M.Sc.,
The University of Edinburgh.
2019, Ajda Remškar, "Predictive modelling of climbing grades", M.Sc, The University of Edinburgh.
2019, Dziugas Vysniauskas, "Spatio-temporal Mobile Traffic Forecasting", M.Sc, The University of Edinburgh.

2019, Nick Antonopoulos, "Mobile Data Forecasting with Spatiotemporal Networks", M.Sc, University of Edinburgh.
2019, Sijin Xiang, "Spatio-temporal Mobile Traffic Forecasting", M.Sc, The University of Edinburgh.
2019, Rui Li, "Resource Optimisation in Future Mobile Networks", Ph.D., The University of Edinburgh.
2018, Sotiris Nanopoulos, "Decentralized Firmware Updates for IoT Devices", M.Sc, The University of Edinburgh.
2018, Pin Qu, "Spatio-Temporal Mobile Traffic Forecasting using Convolutional Long Short-Term Memory", M.Sc, The University of Edinburgh.
2017, Ziqiang Xu, "Will they Scale? Performance Analysis of Wide Area Networks for IoT", M.Sc., The University of Edinburgh.
2017, Sreeroopa Sreeja Kumar, "Health Monitors under the Magnifying Glass: A Security & Privacy Study", M.Sc., The University of Edinburgh.
2016, Rajkarn Singh, "A Framework for Privacy Preserving Data Sharing for Location Datasets", M.Res. The University of Edinburgh (co-supervised with M. Marina)
2015, Sivaprakash Senapathi, "SDN based Management of WiFi Access Points", M.Res., The University of Edinburgh (co-supervised with M. Marina).
2015, Sudhanshu Janghel, "Drone Security Evaluation", M.Sc., The University of Edinburgh.
2010, Jnanesh V. Bhaganagare, "Design, Implementation and Evaluation of a Distributed Protocol for QoS Provisioning in 802.11E EDCA Ad-hoc WLANs" M.Sc., University Carlos III of Madrid (co-supervised with P. Serrano).

Interns

Nov. 2020 – Oct. 2021, Luyang Xu, Computer Network Information Center, Chinese Academy of Sciences
June 2019 – Aug. 2019, Stephen Waddell, University of Edinburgh.
July 2018 – Dec. 2018, Marco Cominelli, University of Brescia.
May 2018 – July 2018, Adela Rotar, University of Edinburgh.
June 2018 – Sept. 2018, Haoyu Liu, University of Edinburgh.
June 2018 – Aug. 2018, Ayush Bhardwaj, IIT Roorkee.
Mar. 2016 – May 2016, Daniel Licciardello, University of Catania.
Sept. 2015 – Dec. 2015, Chiara Capretti, University of Brescia.
Sept. 2014 – Feb. 2015, Nicolo Facchi, University of Brescia.

Doctorate Exams

2021, Armin Okic, "Cloud-empowered DSP Leveraging Big Data Analytics in C-RAN Architecture", Ph.D., Politecnico di Milano, supervisor Dr Alessandro Enrico Cesare Redondi.
2020, Muhammed Dawood, "Automotive Cognitive Access: Towards customized vehicular communication system", Ph.D., University of Plymouth, supervisor Dr Bogdan Ghita.
2020, Jiska Classen, "Security and Privacy for IoT Ecosystems", Ph.D., Technische Universität Darmstadt, supervisor Prof. Matthias Hollick.
2019, Abhirup Ghosh, Ph.D., School of Informatics, The University of Edinburgh, supervisor Dr Rik Sarkar.
2018, Iñaki Úcar Marquéz, Ph.D., Telematics Engineering, University Carlos III of Madrid, supervisor Arturo Azcorra.
2018, Xenofon Foukas, Ph.D., School of Informatics, The University of Edinburgh, supervisor Dr Mahesh Marina.
2017, Miryam Gonzalez Perez, Ph.D., School of Engineering, The University of Edinburgh, supervisor Prof. John S. Thompson.
2017, Andriana Gkaniatsou, Ph.D., School of Informatics, The University of Edinburgh, supervisor Prof. Alan Bundy.
2017, Panagiota Katsikouli, Ph.D., School of Informatics, The University of Edinburgh, supervisor Dr Rik Sarkar.
2016, Cheng Feng, Ph.D., School of Informatics, The University of Edinburgh, supervisor Prof. Jane Hillston.
2014, Arsham Farshad, Ph.D., School of Informatics, The University of Edinburgh, supervisor Dr Mahesh Marina.

Scholarly Activity

Organising Committees
- Poster & Student Research Competition co-chair, The Annual International Conference on Mobile Computing and Networking (MobiCom 2021).
- Technical Programme Committee co-chair, the 17th International Symposium on Wireless Communication Systems (ISWCS 2021).
- Technical Programme Committee co-chair, The Third UK Mobile, Wearable and Ubiquitous Systems Research Symposium (MobiUK 2021).
- Technical Programme Committee co-chair, The First Workshop on Machine Learning and Systems (EuroMLSys) co-located with EuroSys '21.
- Local Arrangements co-chair, The European Conference on Computer Systems (EuroSys 2021).
- Demos chair, The International Workshop on Mobile Computing Systems and Applications (HotMobile 2021)
- Track Chair, AI/ML in Wireless Sensing, Communications and Applications, IEEE Consumer Communications & Networking Conference (CCNC 2021).

- Steering Committee member, Workshop on Distributed Machine Learning (Distributed ML, 2020–present)
- Demos/posters co-chair, International Conference on Distributed Computing in Sensor Systems (DCOSS 2019).
- Local chair, the 20th Scottish Networking Event (SCONE 2018).
- Publicity co-chair, IEEE Wireless Communications and Networking Conference (WCNC 2018).
- Steering Committee member, ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation & Characterization (WiNTECH, 2017–present).
- Replicability Committee member, ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec 2019, WiSec 2018, WiSec 2017).
- Technical Programme Committee co-chair, The 10th ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation & Characterization (WiNTECH 2016), co-located with ACM MobiCom.
- Demos/Posters chair, The 9th ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation & Characterization (WiNTECH 2014), co-located with ACM MobiCom.
- Demos/Posters chair, The 11th ACM International Symposium on Mobility Management and Wireless Access (MobiWAC 2013), co-located with ACM MSWiM.
- Publication co-chair, The 13th IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM 2012).
- Scientific secretary, The 16th European Wireless Conference (EW 2010).

Technical Programme Committees

- The Network Traffic Measurement and Analysis Conference (TMA 2021, TMA 2020, TMA 2019).
- The International Teletraffic Congress (ITC 33 – 2021)
- The ACM SIGCOMM Workshop on 5G Measurements, Modeling, and Use Cases (5G-MeMU 2021), co-located with ACM SIGCOMM.
- The International Workshop on Network Traffic Analytics (IWNTA 2021), co-located with MobiSPC.
- The IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM 2021, WoWMoM 2020, WoWMoM 2019, WoWMoM 2018, WoWMoM 2015 Demos, WoWMoM 2013, WoWMoM 2012).
- The IEEE Wireless Communications and Networking Conference (WCNC 2021, WCNC 2020, WCNC 2019).
- The IEEE International Conference on Sensing, Communication and Networking (SECON 2020)
- The ACM International Workshop on Wireless Network Testbeds, Experimental Evaluation & Characterization (WiNTECH 2020, WiNTECH 2019, WiNTECH 2017).
- The IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM 2020, WoWMoM 2019, WoWMoM 2018, WoWMoM 2015 Demos, WoWMoM 2013, WoWMoM 2012).
- The Annual UK System Research Challenges Workshop (UK Systems 2020).
- ACM CoNEXT Workshop on Big DAta, Machine Learning and Artificial Intelligence for Data Communication Networks (Big-DAMA 2019).
- IEEE International Conference on Mobile Ad-hoc and Sensor Systems (MASS 2019, MASS 2018).
- The IEEE Consumer Communications & Networking Conference (CCNC 2019)
- The IEEE Global Communications Conference (GLOBECOM 2018, GLOBECOM 2017).
- The Annual IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC 2018, PIMRC 2013).
- The International Conference on Wired/Wireless Internet Communications (IFIP WWIC 2019, IFIP WWIC 2018).
- The International Conference on Computer Communications and Networks (ICCCN 2018).
- The Annual International Conference on Distributed Computing in Sensor Systems (DCOSS 2018).
- The EAI International Conference on Cognitive Radio Oriented Wireless Networks (CROWNCOM 2018).
- The IEEE Vehicular Technology Conference (VTC 2017-Spring, VTC 2016-Fall, VTC 2016-Spring, VTC 2015-Fall, VTC 2015-Spring, VTC 2013-Fall, VTC 2013-Spring).
- The IEEE International Workshop on Software Defined 5G Networks (Soft5G 2016, Soft5G 2015), co-located with IEEE SoftNet.
- The IEEE/IFIP Wireless Days Conference (WD 2019, WD 2014, WD 2013, WD 2012).
- The IFIP International Conferences on Networking (Networking 2014, Networking 2012).
- The ACM International Symposium on Mobility Management and Wireless Access (MobiWAC 2014, MobiWAC 2013).
- The Scottish Infromatics & Computer Science Alliance PhD Conference (SICSA 2014).
- The International Workshop on Wireless Access Flexibility (WiFlex 2013).
- The International Conference on Wireless Information Networks and Systems (WINSYS 2012).
- The 5th IEEE International Workshop on Enabling Technologies and Standards for Wireless Mesh Networking (MeshTech 2011), co-located with IEEE MASS.

Editorial Boards

- Associate Editor, Elsevier Computer Communications journal (2020–present)
- Guest Editor, Applied Sciences, Special Issue "AI in Mobile Networks" (2020)

- Associate Editor, IEEE Communications Letters (2017–present)
- Technical Committee member, Elsevier Computer Communications journal (2014–2020)

Reviewer

- IEEE journals: IEEE/ACM Transactions on Networking, IEEE Transactions on Mobile Computing, IEEE Journal on Selected Areas in Communications, IEEE Transactions on Vehicular Technology, IEEE Transactions on Wireless Communications, IEEE Transactions on Communications, IEEE Transactions on Network and Service Management, IEEE Communications Magazine, IEEE/OSA Journal of Lightwave Technology, IEEE Communications Letters, IEEE Wireless Communications Letters, IEEE Signal Processing Letters, IEEE Open Journal of the Communications Society;
- ACM journals: ACM Transactions on Privacy and Security, ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), Communications of the ACM;
- PLOS journals: PLOS ONE;
- Elsevier journals: Computer Networks, Ad-hoc Networks, Pervasive and Mobile Computing;
- Springer journals: ACM/Springer Mobile Networks and Applications, Wireless Networks, Telecommunications Systems, Wireless Personal Communications, EURASIP Journal on Wireless Communications & Networking;
- Other journals: MDPI Sensors, Journal of Communications and Networks, Ad Hoc & Sensor Wireless Networks, International Journal of Ad Hoc and Ubiquitous Computing, Hindawi Mobile Information Systems.
- Grant reviewer: UK Engineering and Physical Sciences Research Council (EPSRC), EU Framework Programme for Research and Innovation (Horizon 2020), European Research Council (ERC), Natural Sciences and Engineering Research Council of Canada (NSERC), Pazy Foundation.

Advisory Boards

- ITU AI/ML in 5G Challenge Management (2020)
- ScotlandIS Digital Skills Partnership (2019–2020)
- ITU-T Focus Group on Machine Learning for Future Networks including 5G (2018–2020)
- IoT Programme board member, The University of Edinburgh (2017–2020)
- University of Edinburgh IoT Programme Board and Privacy & Security Action Group (2017–2020)
- Expert Group member, NetWorld2020 European Technology Platform (2015–present)

Invited Talks (selected)

2020, Nov., Huawei's DataCom Global Connect 2020
2020, Nov., ITU Webinar on "Towards a truly Autonomous Network"
2020, Sept., AI UK | Smart Cities, The Alan Turin Institute Webinar
2020, Mar., Samsung AI Cambridge, UK
2020, Feb., Scot-Secure 2020, Edinburgh, UK
2019, Oct., Ian Dangerfield Lecture, Hamilton Institute, Ireland.
2019, Sept., CONNECT Summer School on Machine Learning for Communication Systems and Networks,
Trinity College Dublin, Ireland.
2019, May, Innovation & Research Symposium organised by Cisco and Ecole Polytechnique, Paris, France.
2019, Mar., "Towards a New Era - AI in 5G" workshop, Shenzhen, China
(organised by China Academy of Information and Communications Technology (CAICT) in collaboration with ITU).
2019, Feb., Loughborough University, UK.
2019, Feb., University of Exeter, UK.
2018, Dec., University of Glasgow, UK.
2018, Sept., MobiUK, University of Cambridge, UK.
2017, Nov., Scotland Meetup on "Trends in Data Communications Research"
(organised by IEEE Communications Society's Young Professionals network).
2017, May, University of Brescia, Italy.
2016, Aug., Northeastern University, Boston, USA.
2016, July, Boston University, USA.
2016, July, Massachusetts Institute of Technology (MIT), Cambridge, MA, USA.
2016, May, Technical University of Darmstadt, Germany.
2016, May, Queen Mary University of London, UK.
2015, Dec., NEC Laboratories Europe, Heidelberg, Germany.
2015, May, Institute of Electronics, Computer and Telecommunication Engineering (IEIIT),
National Research Council (CNR), Turin, Italy.
2014, Mar., University of Trento, Italy.
2014, Mar., University College London, UK.
2013, May, Paris Descartes University, France.
2013, May, Pierre-and-Marie-Curie University, Paris, France.

Outreach

2020, June, Compiled "IoT Education Kit" available via Arm University Program.
2019, Apr., "Health Trackers: Help or Hindrance?" panel at the Edinburgh Science Festival.
2017, Apr., BCS Sidney Michaelson Memorial Lecture "Wearables That Snitch on Us" at
the Edinburgh International Science Festival.
2016, Oct.–Dec., Cisco Little BIG Awards STEM Ambassador.
2016, May., Most viewed writer on IEEE 802.11, Wireless Routers, and Routers topics on Quora.
2016, Mar., Member of playwrights team for "Data and the Future City" play staged at Traverse Theatre, Edinburgh.
2015, Mar., Organiser of the "WiFi Knots: Playing with Wireless Networking Protocols" workshop,
Innovative Learning Week, The University of Edinburgh.
2010, Nov., Speaker at Institute IMDEA Networks Open House, Leganés, Spain.

University Service

2019–2020, Deputy Director of Teaching, School of Informatics, University of Edinburgh
2018, Interview Panel member for Lecturer/Senior Lecturer in Radio Frequency, School of Engineering,
University of Edinburgh
2017–present, Steering Group member, Academic Centre of Excellence in Cyber Security Research,
University of Edinburgh.
2017–2019, School of Informatics Public Engagement and Outreach coordinator, University of Edinburgh.
2014–2015, 2019–present, Co-ordinator of Networks group fortnightly seminar series at the University of Edinburgh.
2012–2013, Co-ordinator of NetLab group weekly seminar series at the Hamilton Institute.
2009–2011, Member (elected), Telematics Engineering Dept Council, University Carlos III of Madrid.

Professional Memberships

2018–present, Senior Member of the Institute of Electrical and Electronics Engineers (IEEE).
2008–2018, Member of the Institute of Electrical and Electronics Engineers (IEEE).
2010–present, Member of the Association for Computing Machinery (ACM).
2014–present, Member of the ACM Special Interest Group on Mobility of Systems, Users, Data, and Computing (SIGMOBILE).