

Michael Baddeley MEng PhD

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[LinkedIn](#) | [GitHub](#) | [Website](#) | [Publications](#)

RESEARCH INTERESTES

Internet of Things (IoT), Wireless Mesh Networks, Software Defined Networking (SDN), Autonomous and Cooperative Robotics, Backscatter Communication, Concurrent Transmissions

EDUCATION

PhD, University of Bristol (2020)

Thesis: *Software-Defined Networking for the Industrial Internet of Things* ([online](#))

MEng, University of Strathclyde (2010)

Degree Result: *MEng with Merit in Computer and Electronic Systems*

KEY SKILLS

C/C++:	Real-Time Operating Systems (RTOS) (Contiki-NG, FreeRTOS, Zephyr)
Python:	pandas, matplotlib, numpy, seaborn
Java EE:	Maven, Karaf, Camel, ActiveMQ, CXF
Web:	Graphana, InfluxDB, NodeJS
Other:	Linux Bash, Makefiles, Git, Matlab, Docker, Jira, Software Defined Radios (GNU Radio)
Wireless Standards:	Bluetooth, IEEE 802.15.4, LoRa
Network Protocols:	6TiSCH, 6LoWPAN, RPL, CoAP, MQTT, TCP/UDP, OpenFlow
Embedded SoC:	Nordic (nRF52840, nRF5340), TI (CC2420)

EXPERIENCE

Senior Research Engineer, *Toshiba Research Europe Ltd. (Bristol, UK)* 2018 - present
Cutting-edge wireless research. Protected IP through patents. Published academic papers. Wrote successful funding proposals.
Relevant Skills: Embedded C, RTOS, Python, IoT, Wireless, Patents, Papers

Software Developer, *Thales Transportation Systems (Stuttgart, DE)* 2013 - 2014
Software architect for the development of a Java Enterprise Service Bus (ESB) middleware for railway protocol integration.
Relevant Skills: Java EE, Software Architecture, Scrum/Agile

Design Engineer, *Thales Research and Technology (Reading, UK)* 2011 - 2013
Designed VHF-band radio drivers for aircraft communications and developed projects to explore new research areas.
Relevant Skills: Embedded C, Wireless Communications

Business Process Developer, *SwordCiboodle (Glasgow, UK / Chicago, IL)* 2010 - 2011
Developed Customer Relationship Management (CRM) systems in Java and JavaScript, supervised releases of new software.
Relevant Skills: Java, JavaScript, Scrum/Agile

RELEVANT PROJECTS

UMBRELLA, *Deployment of a City-Wide 200 Node Multi-Radio IoT Testbed.*

I've authored the wireless network architecture for a 200 node multi-radio IoT testbed deployed across north Bristol, UK.

Atomic, *Embedded BLE and IEEE 802.15.4 Stack for Concurrent Transmissions (CT)*. [\[1\]](#), [\[2\]](#), [\[3\]](#)

I've developed a novel mesh communications stack capable of on-the-fly scheduling across all BLE physical layers and IEEE 802.15.4, and is able to synchronise neighbouring nodes to within nanoseconds.

μSDN, *Software Defined Networking for Embedded IoT Devices*. [\[GitHub\]](#)

I've written a lightweight *Software Defined Networking (SDN)* stack for embedded IoT devices. Developed as part of my PhD thesis, this stack extends SDN concepts to the very edge of the Internet of Things.

Backscatter, *Ultra Low-Power Communications*. [\[YouTube\]](#)

I'm currently supervising a project involved with exploring novel uses for extremely low-power *backscatter* (the technology used within RFID) communication tags.