

# Szymon Fedor

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## PROFESSIONAL EXPERIENCE

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### **Massachusetts Institute of Technology, Media Lab**

**Cambridge, USA**

### **University of Cambridge, Computer Laboratory**

**Cambridge, UK**

[May 2014-Present] Research Scientist

- Carried out research focused on the development of non-invasive biomarkers of depression using wearables, longitudinal multimodal data and Machine Learning
- Developed together with academic (Harvard, MIT) and medical partners (Massachusetts General Hospital, Bingham and Women Hospital) 4 clinical protocols
- Negotiated study terms with funding organizations and industrial partners
- Initiated and managed several clinical (co-PI) studies where over 200 people with different types of depression were monitored 24/7
- Developed algorithm for processing of the longitudinal physiological and behavioral data
- Supervised PhD students and undergraduates

### **United Technologies Research Center**

**Cork, Ireland**

[Oct 2011 – May 2014] Research Team Leader

- Led research group working on the wireless and networking projects.
- Developed proof-of-concept of the next generation UTC building and home management products using various wireless protocols (WiFi, ZigBee, BLE) and worked with the business units on the commercialization.
- Researched new distributed, over-the-air reprogramming method for Wireless Sensor Networks (WSN) based on RESTful architecture.
- Delivered a tool for optimizing the deployment of the large scale WSN-based products.
- Collaborated with leading European universities and industrial research groups.
- Contributed to 2 successful national and 2 EU project proposals. Collaborated with leading European universities and industrial research partners
- Published journal/conference publications, patents.
- Represented UTC at the IPSO alliance.

### **Massachusetts Institute of Technology, Media Lab**

**Cambridge, USA**

[Oct 2010-Feb 2011] Visiting Scientist,

- Led a project where pattern classification techniques were used to compare different sites for skin conductance measurement.
- Analysed large volumes of physiological signals from body sensor networks using machine learning techniques to identify patterns with the aim of providing personalized therapy to patients with PTSD.

### **Ericsson Research**

**Dublin, Ireland**

[Feb 2008 – Sept 2011] Senior Researcher

- Headed research group responsible for architecture design, implementation and tests of the WSN service platform prototype used by various Ericsson Research partners.
- Developed numerous proof-of-concepts integrating wireless short-range (802.11x, 802.15.4, BLE) and mobile (LTE, WCDMA) protocols into future products.
- Accomplished wireless protocols optimizations for power efficiency and service delivery.
- Designed architectures for video and audio streaming systems over wireless networks.
- Contributed to the standardisation 3GPP and ETSI committees.

## EDUCATION

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### Dublin City University

Dublin, Ireland

[Sept 2004-Feb 2008] Ph.D. School of Electronic Engineering, Thesis: *Cross-layer optimization of routing protocols in Wireless Sensor Networks*.

### Dublin City University

Dublin, Ireland

[Sept 2003 – Sept 2004] M.Eng. in Telecommunications Engineering with First Class Honours, Thesis: *Location and tracking of mobile users in a wireless system*

### National Institute of Applied Sciences (INSA)

Lyon, France

[Sept 1999 – Sept 2004] Diplôme d'ingénieur (equivalent to M.Sc), Computer Science, Thesis: *Adaptation and evaluation of IP protocol on the SDH network*.

## PUBLICATIONS

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1 book, 1 book chapter, 3 journal papers, 15 conference papers; full list provided at <https://tinyurl.com/sfedor>

## PATENTS

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- 4 patents and 3 pending applications

## TECHNICAL SKILLS AND COMPETENCES

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- Programming: Python, Java, C, Android, NescC, TinyOS, Matlab, R
- Machine Learning, Statistics, Experience Sampling Method
- Biomedical Signal Processing (EDA, HR/HRV, EEG, voice, activity)
- Network protocols: IEEE802.15.4, ZigBee, CoAP, 6LoWPAN, ISA SP100, 802.11, Bluetooth, TCP/UDP, MQTT
- WSN platforms: CC2538, MicaZ, Mica2, TmoteSky, Imote2

## ADDITIONAL SKILLS

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- Languages: Trilingual: Polish, English, French
- Leadership and Management – led 2 research groups in an industrial environment and managed multiple collaborations with academic, medical and business partners. Coordinated 4 clinical research collaboration as a co-PI and 2 European Project WPs.
- Technology commercialization – accomplished several research commercialization projects through the stage-gate process including market research, risks reduction, proof-of-concept development and technology transfer to a business unit phases.
- Grant preparation and project negotiations – initiated and drove the preparation of the 5 successful research grants and negotiated the agreements with the partners.
- Oral and written presentation skills – delivered oral presentations at many international conferences with more than 100 delegates, organized several workshops for MIT Media Lab member companies, frequently presented and demonstrated proof-of-concepts at the internal company meetings; wrote scientific publications & patents

## SCHOLARSHIPS AND AWARDS

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- MGH-MIT Partnership Grand Challenge, success rate 10%, \$275k, MGH-MIT, 2015
- Marie Curie International Outgoing Fellowship, success rate 15%, 250k€, EU, 2012
- Industrial Tech Awards for Commercialisation of Research, Enterprise Ireland, 2006
- Commercialization of Research Student Project Award, DCU Business School, 2006

## PRESS

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- 'Smartwatch' sensors to help diagnose depression, Horizon Magazine

## REFERENCES

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Available on request