

Valentin Poirot

IoT and Embedded AI/ML Research Scientist - Doctoral Candidate

Kiel, Germany

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Summary

Systems Researcher with 5+ years of experience in IoT, low-power wireless communication, and embedded machine learning. I like to design embedded AI/ML and TinyML solutions for constrained platforms using Tensorflow Lite for Microcontrollers and CMSIS-NN. I also build distributed algorithms and network protocols for IEEE 802.15.4, Bluetooth Low Energy and Mesh. Proficient in Python, C, Tensorflow, and embedded operating systems (Zephyr RTOS, Contiki-NG). Team-oriented, I supervised 10+ theses and projects during my PhD. Erasmus alumnus, I studied and worked in four countries. I will defend my PhD in September 2022, looking for my next challenges in embedded AI/ML.

Experience

Researcher, Doctoral Candidate

Sep 2017 - Sep 2022

Kiel University & Chalmers University of Technology

Germany, Sweden

- Designed and implemented distributed protocols for low-power IoT (Bluetooth Low Energy, IEEE 802.15.4)
- Implemented efficient Machine Learning solutions for resource-limited platforms (TensorFlow Lite, CMSIS-NN)
- Authored 5+ papers at international conferences: DAC, ICDCS, EWSN, NOMS, DCOSS [[Scholar](#)]
- Oversaw 10+ M.Sc/B.Sc theses, student projects, that led to workshop and conference publications
- Created and managed M.Sc course labs in Distributed Systems, IoT and Wireless Networks, and Capture The Flag competitions

Research Intern, Master Thesis

Jan-Jul 2017

Ericsson Research

Sweden

- Built new algorithms for multi-connectivity in 5G networks
- Implemented 5G models for in-house simulations

Education

Doctorate of Engineering (Ongoing)

Sep 2017 - Sep 2022

Chalmers University of Technology

Germany, Sweden

- Title: "Towards a More Collaborative, Intelligent, and Adaptive Low-Power Internet of Things"
- Supervisor: Prof. Olaf Landsiedel (University of Kiel & Chalmers University of Technology)
- Key Courses: Machine Learning (ML), Reinforcement Learning (RL), Active Learning (AL), Advanced IoT Topics
- Leadership courses: Team Management and Leadership, Research Ethics and Sustainability, Teaching and Education

Master Erasmus Mundus PERCCOM

2015 - 2017

European Master in Computer Science

France, Finland, Sweden

- Joint European Masters in Pervasive Computing and Communication for a Sustainable Development (PERCCOM)
- Highly selective European master (<10% acceptance rate)
- Each semester takes place at a different university: University of Lorraine (France), LUT University (Finland), Luleå University of Technology (Sweden)
- Key Courses: Green Communications Engineering, Pervasive and Mobile Computing, Sustainability in Computer Science

B.Sc. in Engineering

2012 - 2015

University of Lorraine

France

- **First of promotion, with honors** (Grade: 17.59/20)
- B.Sc. In Engineering, major in Computer Networking and Telecommunications (French: Licence Sciences pour L'Ingénieur EEAPR)
- Key courses: Computer Networks, Telecommunications, Engineering
- First two years done as a University Technical Diploma (DUT Réseaux et Télécommunications)

Skills

Programming

Python, C

Machine Learning

TensorFlow, Tensorflow-Lite for Microcontrollers, CMSIS-NN, Keras

Wireless & IoT

Bluetooth Low Energy & Mesh, IEEE 802.15.4, Zephyr RTOS, Contiki-NG OS

Soft Skills

Team Management, Leadership, Technical Writing

Languages

French (native), English (fluent)

Awards

Best Paper Runner-Up , Intl. Conf. in Embedded Wireless Systems and Networks (EWSN),	2019
Best Thesis Presentation , Awarded after public vote, final thesis grade: 5.0 / 5.0	2017
Erasmus+ Scholarship , Erasmus Mundus Master PERCCOM, highly selective (<10% acceptance)	2015
First of promotion, with honors , B.S. in Engineering, grade: 17.59/20	2015

Selected Publications

- BlueSeer: AI-Driven Environment Detection via BLE Scans**, V. Poirot, O. Harms, H. Martens, O. Landsiedel, Design Automation Conference (DAC), 2022.
- eAFH: Informed Exploration for Adaptive Frequency Hopping in Bluetooth Low Energy**, V. Poirot, O. Landsiedel, IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), 2022.
- Dimmer: Self-Adaptive Network-Wide Flooding with Reinforcement Learning**, V. Poirot, O. Landsiedel, IEEE International Conference on Distributed Computing Systems (ICDCS), 2021.
- Energy Efficient Multi-Connectivity Algorithms for Ultra-Dense 5G Networks**, V. Poirot, M. Ericson, M. Nordberg, K. Andersson, Springer Wireless Networks 2020.
- Paxos Made Wireless: Consensus in the Air**, V. Poirot, B. Al Nahas, O. Landsiedel, International Conference on Embedded Wireless Systems and Networks (EWSN), 2019.