

# Piotr Walas

## Software Engineer

(5y exp)

## European Union

(Currently Poland, Open to relocation)

Board member of [Emerging Researchers in Artificial life](#) since Jan 2024 and former member of [Institute of Electrical and Electronic Engineers](#).

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### Contact Information:

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PL: +48 608 473 380  
UK: +44 0775 1078 174 (whatsApp)  
LinkedIN: [Piotr Walas](#)

### Work Samples:

Github: <https://github.com/PeterWallace>  
ORCID: [ORCID:0000-0003-4097-3870](https://orcid.org/0000-0003-4097-3870)  
Website: [Personal website](#)

### Skills:

Planning, scheduling and managing work, interdisciplinary communication, decisiveness, taking project ownership, first-principle engineering, signal processing, applied math, applied mathematics.

### Languages:

Polish: native speaker  
English: extremely fluent  
Finnish: beginner

### Tech Skills:

**DSP/ML** - filtering algs, evolutionary algs, NNs, NEAT, classic ml (svm, random forest, regression)  
**C/C++** - GCC, ARM, GDB, OpenMP  
**Bare-metal (firmware)** - NRF52, STM32, ATMEGA, ESP32, I2C, SPI, Uart, BLE, RTOS  
**Linux** - NXP, Broadcom, **Ubuntu/Fedora (daily user)**, IP/Networking, multithreaded and multiprocessing systems  
**Python** - Flask/Django/Bottle, Scripting, Prototyping, pyTorch, Numpy, SciPy,  
**Build/Project tools** - make, cmake, git, CI/CD, Bash/BAT, Docker

### Soft Skills:

In the past, I have worked with varying degrees of collaboration, ranging from minimal planning projects that demanded significant ownership and decisiveness, to projects centered around Scrum and Agile methodologies. Teams mostly ranging from 1 to 6 engineers.

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## Education

### **Brunel University**

September 2019 - September 2020

MSc in Advanced Electronics and Electrical Engineering - finished with Distinction (A\*).

### **AGH University of Science and Technology**

September 2015 - February 2019

Engineering in Electronics (BSc) - GPA 4.0/5.0

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## Engineering Experience

### **Emteq Labs United Kingdom:**

May 2022 - November 2023

**Wearable device for affective computing - Firmware/Software Engineer (Full-Time)**

- I was responsible for developing and maintaining firmware for OcoSense Glasses (**C, NRF52, I2C, SPI, BLE**),
- Delivered several low-power features, improving onboard battery monitoring, and designing a softtime task scheduler allowing for scheduling efficient task execution (**NRF52, C, SoftDevice**),
- Additionally, I have designed an asynchronous/multithreaded SDK for building apps compatible with OcoSense glasses, making it available for C/C++, Python and Apple iOS Swift (**C++, multithreading, async**).

Overall delivering a working wearable device, which was used successfully for several data collections.

### **Cellxion Ltd. United Kingdom:**

September 2020 - May 2022

**VPN network and RF DSP algorithms - Software Engineer (Full-Time)**

- developing and maintaining embedded linux hardware vpn nodes - **C, Networking, buildroot**,
- developing and maintaining high efficient vpn server - **C, Networking**,
- web based user interface - Javascript, Html,
- implementation of RF direction finding algorithms for phased arrays - **C++, Python**

## **Freelancing:**

September 2019 - September 2020

Freelancer Software Engineer delivering custom software from embedded applications to web based automation.

- IoT ultrasonic distance sensor - **Python, JS, MQTT, ESP32, I2C,**
- NRF52 Bluetooth low energy library for SoftDevice driver - **C/C++, NRF52, SoftDevice,**
- Online Data Scraping - Selenium, **Python,**
- Access card reader with Wiegand Protocol over IP - Embedded Linux, Wiegand, **Python,**
- Automated Trading Data Monitoring - Selenium, **Python,**

## **Assa Abloy Poland:**

September 2018 - September 2019

**Embedded Linux Project - Embedded Software Engineer (Intern/Full-Time)**

- I was designing embedded linux testing platform - **Python, Bash, I2C, SPI**
- I was responsible for setting up the testing server rack - **Hardware, Networking.**

## **Aptiv Poland**

May 2018 - September 2018

**Active Safety and User Experience - Electronic Engineering Intern**

Hired as intern, helped with FMEA analysis in millimeter wave radar systems for BMW.

- Testing and soldering PCBs - oscilloscopes, multimeters, solder stations,
- Circuit designing and simulations - **LTspice**

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# **Volunteering**

## **EyeGestures [MOST RECENT]:**

November 2023 - Now

**Open source webcam-based eye tracking assistive software - Software Engineer.**

- Designing model based and machine learning algorithms(**Python**),
- Built the backend architecture (**Python, Flask, HTML, JS**),
- Set up live web demos (**Python, JS**),
- Managed organization of repository (**github**)

## **ERA Board member [MOST RECENT]:**

January 2024 - Now

**Early Career and Student Scientific Community - Conference presence.**

- Acting in charge of ERA conference presence and activities,
- Collaborating with ISAL and ALife 2024 to design Workshops and summer school,
- Responsible for organization operations,
- Preparing marketing posters, securing sponsors and venues

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## Publications

- [OCOsense - smart glasses for analyzing facial expression using optomyographic sensors](#) [2023]
- [Acoustic source localization using drone-embedded microphone array](#) [2019 - SPCup2019 outcome]
- [Intelligent vision system for controlling traffic lights at intersection entrances](#) [2018]

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## Side Projects

- [Particle Life](#) - C++, OpenMP, Simulations - 2023
- [Robot ear](#) - Speech Recognition, LLMs, Voice Synthesis 2023
- [JAX\\_NEAT](#) - NEAT, JAX, Python - 2024
- [Genetic Painter](#) - Python, Evolutionary Algorithms - 2023

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## University Projects

- **Brunel University: Master's Thesis - RF-Based person identification**  
Improving methods for person identification, based on radio wave reflections using IEEE 802.11 standards.
- **Brunel University: Brunel Robotic Engineering Society - Student Rocket project:**  
Embedded Software architecture for flight computers.
- **AGH UST: Bachelor's Thesis - Localisation source of sound in IoT systems**  
Creating algorithms for self adjusting sensors array built with IoT mesh network using acoustic channel for communication.
- **AGH UST: Signal Processing Cup 2019 - AGH Team:**  
Algorithms for sound and spectrogram processing development for Signal Processing competition [SPCup2019](#). Implementation of Multiple Signal Classification (MUSIC) algorithm. <https://doi.org/10.1121/1.5137614>
- **AGH UST: Intelligent vision control system at traffic lights on intersection:**  
Research of algorithms for detection of cars and speed measurement for traffic intersection control.  
<https://yadda.icm.edu.pl/baztech/element/bwmeta1.element.baztech-c063fb29-b782-4f48-94cf-88ed10e0f249>