Piotr Walas
Software Engineer

Europe

Member of [Emerging Researchers in Artificial life] and [Institute of Electrical and Electronic Engineers]

Contact Information

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https://www.linkedin.com/in/piotrwalas/

Work samples

https://github.com/PeterWallace

https://peterwaiiace.github.io/me.github.io/

Skills

C/C++, Python, Linux, Git, Algorithms, Simulations,
Signal Processing, Multithreading/Multiprocessing,
JS/html.

Languages

Polish - native speaker
English - fluent
Finnish - learning

Education

Brunel University
September 2019 - September 2020
Master of Science in Advanced Electronics and Electrical Engineering - finished with Distinction.

AGH University of Science and Technology
September 2015 - February 2019
Engineering in Electronics (BSc) - overall grade 4.0/5.0

Engineering Experience

EyeGestures (Personal Freeware Project):
November 2023 - Now
Freeware webcam based software for eye tracking implementing eye controlled cursor, with gaze fixation detection.

Designing and implementing machine learning algorithms for eye tracking, developing backend architecture, and frontend tech demo (https://eyegestures.com/).

- developing and maintaining backend and frontend software - **Python, JS**,
- Developing and maintaining eye tracking algorithms - **Python**,

- Integration of software with Linux and Windows, as well as Web.
- Performing research in field of eye tracking technologies,
- design decisions and validation for new platforms

Emteq Labs United Kingdom:

May 2022 - November 2023

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

Software engineer responsible for research and development activities in relation to OcoSense glasses (affective computing glasses):

- developing and maintaining firmware and related software - **C**,
- Developing and maintaining SDK **C++**,
- Integration of C++ codebase with iOS Swift App
- building test scripts - **Python**,
- design decisions and validation for new platforms

Cellxion Ltd. United Kingdom:

September 2020 - May 2022

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

Software engineer responsible for maintenance of QRMS/QMTS project and development of DSP algorithms for phased arrays.

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

Projects via Freelancer.com (Freelancing):

September 2019 - September 2020

Freelancer Software Engineer delivering custom software from embedded applications to web based automation. My account with feedback for some of projects can be found under this link: https://www.freelancer.pl/u/PeterWa11ace

- IoT distance sensor - preparing IoT device on ESP32 chip with MQTT protocol for communication, simple web server, and ultrasonic distance sensor - Javascript, **MicroPython**
- nRF52 Bluetooth low energy library for SoftDevice driver - custom library for easy access to BLE features in nRF52 chip with SoftDevice - Bare Metal development, **C/C++**
- Online Data Scraping - Selenium based web automation software for cataloging web shows - Selenium, **Python**
- Wiegand Protocol over IP - Embedded Linux based device for accessing card reader with wiegand protocol over IP - Embedded Linux, **Python**
- Automated Trading Data Monitoring - Selenium based software focused on tracking trading data - Selenium, **Python**

Assa Abloy Poland:

September 2018 - September 2019

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

Embedded Software Engineer responsible for delivering custom Embedded Linux solution for IoT Gateway.

- Quality Assurance - preparing test cases for embedded linux device, **Python, Bash**
- Tests Automation - automation of testing process, adding remote access to testing network, **Python, Bash**
- Development of Linux scripts - preparing scripts for execution for testing and maintenance purposes, **Bash**
- Bare metal drivers - writing drivers for devices to control testing setup and interfacing with the device under tests, **C/C++**
- Linux daemon - for monitoring update process, **C/C++**
- Hardware testing and prototyping - prototyping and testing hardware

Aptiv Poland
May 2018 - September 2018
Active Safety and User Experience - Electronic Engineering Intern

Electronic Engineering Intern focused on supporting teams producing millimeter wave radar systems.

- Manual Testing - using measurement equipment including oscilloscopes, multimeters, solder stations,
- Circuit designing and simulations - done in LTspice and Mentor Graphics

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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]

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.
  GNURadio, USRP, **Python**

- **Brunel University:** Brunel Robotic Engineering Society - Student Rocket project:
  Embedded Software architecture for flight computer.
  I2C, SPI, C/C++

- **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.
  Python

- **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
  Jupyter, **Python**

- **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
  C++