

Mateusz Bączek

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Software engineer with 3+ years of experience, both in writing code and leading a team of programmers. Familiar with web development, systems programming and digital signal processing. Fascinated with computer-aided design processes, especially generative art and music.

Experience

Mission operations software development lead

📍 Wrocław, PL

SatRev

📅 2021 — Present

Developed and maintained Satrev's in-house mission-operations software, used to operate the entire fleet of company's satellites. Leading a team of 3-5 programmers.

- Management & monitoring of software infrastructure
- Real-time communication protocols
- Message queues
- Metrics visualisation

Python Rust Linux PostgreSQL Apache Kafka Ansible Azure Grafana Prometheus

Software Developer

📍 Wrocław, PL

SatRev

📅 2020 — 2021

Developed the telemetry software and automation/testing tools used during the testing and integration processes of the STORK satellites. Worked on the software for the on-board computer for the STORK platform.

- Telemetry and ground station software
- Radio communication protocols
- Automatic testing tools

Python PyTest Embedded Linux Buildroot Docker MQTT CI/CD Git InfluxDB

Software Developer

📍 Wrocław, PL

BZB UAS

📅 2020

Worked on an integrated telemetry collection & sharing service for a semi-autonomous UAV dedicated to conducting photogrammetry scans.

Python ArduPilot MavLink Embedded Linux OpenWRT

Education

Wrocław University of Science and Technology

📅 Sep 2022 — 2023

M.Sc. Computer Science. Thesis title: DSP graph generation algorithm for solving the sound synthesis problem.

Wrocław University of Science and Technology

📅 Sep 2017 — 2021

B.Sc. Computer Science. Thesis title: Autonomous drone-based scouting system.

Activity at university

At the university I participated in a student research circle, the Academic Aviation Club (Original Polish name: *Akademicki Klub Lotniczy*), dedicated to developing unmanned aerial vehicles. As a member, I've participated in a number of competitions, both as a programmer and as a team leader.

SAE Aero Design

📍 Florida, USA

📅 2020

Second place in general classification, second place in the Advance category. Developed a mathematical model predicting an optimal position for dropping a payload from a flying plane and built the telemetry software required to operate the system.

Droniada

📍 Kąkolewo, PL

📅 2021

Designed a visual marker detection system, based on machine learning algorithms. The system facilitated real-time marker detection on-board an autonomous drone, which then performed a precise release of pesticides (the subject matter of the competition were new technologies in agriculture). The team won the second place.

IAV – Intelligent Autonomous Vehicles

📍 Gdańsk, PL

📅 2019

Designed a system for determining the position of Bluetooth LE beacons, using an autonomous drone. The team won the first place.

Nokia Innovative Projects

📍 Wrocław, PL

📅 2018

Developed a prototype of a Pokemon-Go-alike game. The game world was generated procedurally, based on Open-StreetMaps. Within the game world, players could gather resources and build structures, that would be visible to other players visiting the same area.

Languages

- **English** – fluent
- **Polish** – native

Personal Projects

Running a personal website and a personal cloud

🔗 <https://baczek.me>

I'm using a VPS server to run a personal website and a number of both personal and public cloud services. Everything is monitored via the Grafana stack.

System Administration Docker Prometheus Grafana Caddy Ansible Wireguard

Collaborative sampler

🔗 <https://github.com/Wint3rmute/libretakt>

Written in a team of 4, the sampler is meant to reproduce the Digitakt-style workflow in a distributed environment. Each user has their own DSP engine running to assure minimal latency, but the changes each user makes in the sequencer state are synchronised in real time across a virtual „jam session”.

Rust WebSockets DSP Audio Effects FFMPEG Media streaming

Linux configuration repository

🔗 <https://github.com/Wint3rmute/dotfiles>

I keep my dotfiles documented and version controlled, with an Ansible-based deployment procedure which allows me to sync my configuration across multiple machines and bootstrap a new computer easily and quickly.

Linux Ansible Git