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
SatRev

📅 2021 — Present   📍 Wrocław, PL

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

- Management & monitoring of software infrastructure
- Python/Rust/Linux/Docker/PostgreSQL
- Real-time communication protocols
- Message queues
- Metrics visualisation

Software Developer
SatRev

📅 2020 — 2021   📍 Wrocław, PL

I've started working at SatRev when the company was at it's early stage, hence I was responsible for a multitude of processes:

- CubeSat's on-board computer software
- Telemetry and ground station software
- Radio communication protocols

Education

Higher
Wrocław University of Science and Technology

📅 Sep 2022 — 2023   📍 Wrocław, PL

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

Wrocław University of Science and Technology

📅 Sep 2017 — 2021   📍 Wrocław, PL

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

Student activity

Academic Aviation Club

📅 Sep 2019 — 2023   📍 Wrocław, PL

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 the following competitions:

SAE Aero Design

📅 2020   📍 Florida, USA

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

📅 2021   📍 Kąkolewo, PL

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

📅 2019   📍 Gdańsk, PL

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

Languages

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

Projects

Running a personal website and a personal cloud

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

- Docker
- Prometheus
- Grafana
- Ansible

Collaborative sampler

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, on both backend and UI
- WebSockets
- Audio filters & effects

Employee Appraisal System

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