

Mateusz Kojro

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Personal information

Name	Mateusz Kojro
Date of birth	30th june 2000
Citizenship	Polish
Affiliation	University of Lodz, Faculty of Physics and Applied Informatics, ul. Pomorska 149/153 Lodz, Poland

Skills

Programming	C++, Python, Go, Rust, JavaScript/TypeScript, SQL
Frameworks and libraries	Intel DAOS, SciPy, OpenCV, React, Express
DevOps	Linux, Git / Github, Docker / Docker Compose, Github Actions
Languages	English (Advanced), Polish (Native)

Experience

CERN/Intel collaboration - ATLAS experiment at the European Organisation for Nuclear Research

Geneva, Switzerland

R&D SOFTWARE DEVELOPER - TECHNICAL STUDENT PROGRAMME

March 2022 - May 2023

- Creating a model low latency - high throughput (up to 5TB/s) caching solution based on DAOS
- Performance evaluation of Intel DAOS (Distributed Asynchronous Object Storage) system in the context of proposed Phase 2 Dataflow upgrades for Atlas detector at the LHC(Large Hadron Colider)
- Working in a international research group

"Microwave material defect detector" - research project funded by Centre for technology transfer at the University of Łódź

Remote

R&D SOFTWARE DEVELOPER

October 2022 - Now

- Developing control software for the detector

National Center for Nuclear Research - Cosmic Ray Laboratory

Łódź, Poland

SOFTWARE DEVELOPER, SCHOLARSHIP RECIPIENT FOR THE DIMS PROJECT

May 2021 - March 2022

- Developing live macroscopic dark matter and meteor trigger detection system for night sky observations
- Developing automatic testing and labelling system used for algorithm evaluation and training machine learning models
- Working on system information gathering software
- Working in international a research group

Freelance Full-stack developer (Back-end, Front-end, Devops)

Remote

SOFTWARE DEVELOPER

June 2020 - November 2021

- Creating and managing website for external company
- Multi-threaded REST server implementation using GO programming language
- Front-end implementation using React.js framework with Typescript
- Website architecture design using client-server architecture
- Managing server architecture using Google Cloud

IT Services SINFO Sp. z o.o. - computers and printers service

Bydgoszcz, Poland

SYSTEMS ADMINISTRATOR

May 2018 - April 2019

- Workstations management (Windows and Linux)
- Computer assembly and conservation
- Diagnostics and repair of hardware and software faults

Mental Health Clinic "Stawowa"

Bydgoszcz, Poland

IT TECHNICIAN

May 2019 - September 2019

- IT help desk - computer support
- Network administration
- Computer assembly and conservation

Freelance programming Application module (C#)

SOFTWARE DEVELOPER

Bydgoszcz, Poland

August 2019 - September 2019

- Creating module of C# application used for checking Medical Insurance Status
- Interacting with SOAP API

Education

Computer Science Degree (3rd year of an undergraduate degree)

Łódź

UNIVERSITY OF ŁÓDŹ - FACULTY OF PHYSICS AND APPLIED INFORMATICS

2019 - now

- Extended object oriented programming course in C++
- Graphics programming course with OpenGL, Vulkan and Three.js
- Basic neural networks and deep learning course
- 3D game project using Three.js library

Physics Degree (2nd year of an undergraduate degree)

Łódź

UNIVERSITY OF ŁÓDŹ - FACULTY OF PHYSICS AND APPLIED INFORMATICS

2020 - Suspended in October 2021 due to

CERN opportunity

- Basic physics course
- Introduction to solid state and atomic physics

3rd High School Bydgoszcz

Bydgoszcz

EXTENDED MATH, PHYSICS AND COMPUTER SCIENCE TRACK

2017 - 2019

- Participation in Astro PI contest - creating a program to be run on a Raspberry pi located on a International Space Station

Google Nanodegree

Online

UDACITY

March 2017 - August 2017

- Java - creating mobile applications for Android

Publications

Investigation of the Intel DAOS distributed object store in the context of the ATLAS TDAQ Phase II upgrade (POSTER)

ATLAS WEEK POSTER SESSION

2022-06

Search for interstellar meteors with the DIMS experiment (POSTER)

IMC2022 POSTER SESSION

2022-06

Meteor observation with the DIMS project: sensor calibration and first results

PROCEEDINGS OF THE IMC

2021-11

DIMS Experiment for Dark Matter and Interstellar Meteoroid Study

37TH INTERNATIONAL COSMIC RAY CONFERENCE (ICRC2019), VOLUME 37 OF INTERNATIONAL COSMIC RAY CONFERENCE

2021-07

Characterization of the DIMS system based on astronomical meteor techniques for macroscopic dark matter search

37TH INTERNATIONAL COSMIC RAY CONFERENCE (ICRC2019), VOLUME 37 OF INTERNATIONAL COSMIC RAY CONFERENCE

2021-07

Solar Power Supply and Environmental Control System for DIMS Experiment

37TH INTERNATIONAL COSMIC RAY CONFERENCE (ICRC2019), VOLUME 37 OF INTERNATIONAL COSMIC RAY CONFERENCE

2021-07

Private Projects

Basic Neural Network library

C++

- <https://github.com/mateuszkojro/neural-network-library>
- Creating and managing projects that use CMAKE
- Implementation of simple deep neural network algorithms based on linear algebra

Simple interpreted programming language

C++

- <https://github.com/mateuszkojro/programing-language/>
- Implementing recursive backtracking interpreter for simple programming language

Markdown markup language transpiler

Typescript, HTML, CSS

- <https://github.com/mateuszkojro/markdown-parser>

Basic Chess engine

Rust

- Design and implementation of original algorithm

Audio visualiser

C++

- Fourier transform implementation
- Working with audio files on low level
- Working with SDL
- <https://github.com/mateuszkojro/audio-visualizer>

Video player with Lua scripting support

C++

- Embedding Lua scripting language into an application
- Working with video files on low level
- Creating GUI's using QT
- Working with OpenCV
- <https://github.com/mateuszkojro/video-player>