

# Jakub Jan Duchniewicz

JUNIOR SOFTWARE ENGINEER · EMBEDDED AND GAME ENGINE DEVELOPER

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*"Success is 5% talent and 95% hard work"*

## Summary

I am a passionate and hard-working person, therefore I do a wide range of technology-related activities in my free time, be it tweaking my Linux OS, programming microcontrollers or creating smart-home solutions. I am involved in open-source projects and I enjoy developing time-saving scripts and plugins. I have already built successful and open-minded teams, proving my capabilities in this area. I believe that helping others is as valuable as my own technical contribution to the team.

## Education

### EIT Digital Master School

M.Sc. IN EMBEDDED SYSTEMS

*Europe*

*Sept. 2020 - Present*

### University of Turku

M.Sc. IN EMBEDDED SYSTEMS

*Turku, Finland*

*Sept. 2020 - Present*

### Warsaw University Of Technology

B.Sc. IN COMPUTER SCIENCE

*Warsaw, Poland*

*Oct. 2016 - Aug. 2020*

Bachelor's Thesis: FPGA based hardware accelerator for musical synthesis for Linux system.

## Experience

### Samsung Electronics

*Warsaw, Poland - Suwon, South Korea*

JUNIOR SOFTWARE ENGINEER

*Feb. 2018 - Mar. 2020*

- Improved Tizen Operating System Broadcast middleware (C++/C/Arm assembly). Managed performance in an embedded system, through code restructurization and thread-wise code improvement.
- Improved performance of code in major broadcasting pipelining module by aware refactorization and smart usage of C++17 STL and Boost library.
- Improved overall health of code, by analysis of coredumps and various system logs. When deemed necessary provided other teams with ready solution.
- Developed from scratch a multithreaded C compliant middleware process, with custom thread work queue implementation.
- Worked with version control tools (git, p4) and in an agile environment (scrum).
- Developed bash and python scripts aiding development and analysis of problems.
- Developed python utility program for automatization of defect analysis.
- Travelled to South Korea to aid with defects management during commercialisation and to offer quick support.
- Worked in a diverse multi-cultural environment (directly with a group of 30 people), giving helping hand those who needed it.

### Samsung Electronics

*Warsaw, Poland*

INTERN

*Dec. 2017 - Feb. 2018*

- Supported in project management and knowledge transfer from other R&D Institute.
- Based on good performance and analytical skills got an offer for full-time work.

### BoSport/Beskid Ski Arena

*Chałupy/Szczzyrk, Poland*

KITE/WIND/SKI INSTRUCTOR

*Jun. 2014 - Sep. 2017*

- Worked with all kinds of people, teaching them and maintaining good relations throughout the years following.
- Taught in various changing conditions, always taking responsibility for life of others.
- Taught in both Polish and English in groups up to 10 people.

## Extracurricular Activity

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### Envidrawer

Warsaw

PROGRAMMING AND ELECTRONICS LEAD

Sept. 2020 - Jan. 2021

- Designed a sustainable, automated plant growing solution working in varying climate conditions.
- Programmed a sensor-monitoring system and a visualisation web-based service.
- Designed and implemented an analog control circuit as well as 12 V powering circuit.
- Nurtured friendly atmosphere and healthy work-life balance during the project with 2 other members.

### BEYOND 2030 Challenge

Turku

MENTOR

Oct. 2020 - Nov. 2021

- Guided a group of 2 high-school students in their environmentally sustainable project - Smart bee-hive.
- Provided support in technical and project management matters.
- Gave support where needed, pulling the students instead of pushing.

### PolyEngine

Warsaw

DEVELOPER

Oct. 2017 - Present

- Reimplemented Entity Component System systems.
- Refactored code and cleaned architecture of engine.
- Developed various necessary features during gamejams (both gameplay and engine-wise).
- Developed 3 games during Global Game Jam 18/19 and Slavic Game Jam 18.
- Developed efficient data structures for a game engine: string and queue with STL compliance.

### KNTG Polygon

Warsaw

VICE PRESIDENT AND EVENT ORGANISER

Oct. 2017 - Jun. 2019

- Organised weekly meetings for student game development group Polygon.
- Gave two talks on Modern C++ usage and easily overlooked nuances.
- Planned and realised two 4-meeting editions of Game Dev Fest: invited lecturers and managed sponsorship of both events.
- Managed sponsorship funds and promotion of both events.
- Helped organise game jams (Polyjam 2018/2019).

## Skills

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<b>Programming</b>	C++17, C, C#, Rust, ARM/x86 assembly, Python, Bash, LaTeX, Verilog, VHDL
<b>Technical</b>	FPGA, Electronics, Microcontrollers, RTOS, Linux Kernel, ROS, CUDA, PyTorch, Deep Learning, DSP, Network Stack, IoT, Compilers, Game Engine Architectures
<b>Languages</b>	Polish, English, German, Spanish

## Honors & Awards

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2019	<b>Honorable mention</b> , Warsaw Film School Game Jam VI "Eternal Feud" - Low-poly, competitive co-op, made in a duo team.	Warsaw, Poland
2018	<b>Honorable mention</b> , Static Code Analysis Competition - Samsung Electronics	Global
2017	<b>2nd Place Overall, 2nd Place in Innovation</b> , Polyjam, Global Game Jam 2017 "Ommm" - Controlling a monk with the power of your voice.	Warsaw, Poland

## Motivation

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Since I was young I was amazed by the work being done in CERN. Little did I know that one day I would be skilled enough to apply there and participate in this groundbreaking research. I believe that my strong technical skills, paired with my ability to forge meaningful bonds and healthy teams would make me an excellent candidate for this position.

Being able to solve the technical challenges that might arise during my work in CERN is thrilling, since I enjoy complicated problems and untangling them piece by piece. My previous experience in such work is surely an advantage. Moreover, I did a considerable amount of bug hunting in foreign codebases. With that I became capable of quickly understanding novel and complex systems to start improving and working with them straight away.

Lastly, having the possibility to work amidst the world's greatest minds, learning from them and establishing valuable connections would be a superb opportunity for my future career and scientific growth. Even though the formula for this summer is different, I wish to absorb as much knowledge and contacts as possible.