



JAKUB JAROMIN

3RD YEAR STUDENT

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Poland, Silesian Voivodeship, Łódź

EDUCATION

Computer Science

Silesian University of Technology
Faculty of Applied Mathematics

2023 - now

LANGUAGES

Polish - native

English - C1

About me

I am a Computer Science student at Silesian University of Technology in Gliwice, passionate about artificial intelligence, machine learning, and process automation.

In my free time, I develop projects ranging from no-code workflows in n8n to advanced neural networks in PyTorch or TensorFlow.

My strong mathematical foundation and analytical mindset allow me to efficiently handle tasks from data preprocessing to ML model deployment.

Skills:

Programming Languages

- Python (Machine Learning, Deep Learning, Data Analysis)
- Wolfram (Calculus, Math modeling)
- C/C++ (CUDA, Desktop apps)
- C# (Desktop apps, Rest APIs)

Data Manipulation & Analysis

- Pandas, Polars, NumPy, SciPy

Data Visualization & APIs

- Matplotlib, Seaborn, FastAPI, requests

Databases:

- SQL (PostgreSQL, MySQL, MariaDB, SQLite)
- Vector DB: Qdrant, Weaviate
- Graph Databases

Machine Learning & Statistical Foundations:

- Machine Learning (model development & evaluation)
- Statistics, Linear Algebra, Calculus, Algorithms & Data Structures

Version Control & Collaboration

- Git (branching, merging, code review)

DevOps & Self-Hosting:

- Docker
- Linux

Experience

HackYeah 2025 Winner

October 2025

Won HackYeah 2025 (biggest stationary hackathon in Europe) in the Biohacking category — the most competitive track with nearly 60 international teams.

Developed "Rest & Blink", an AI-powered wellness application using computer vision and heart-rate monitoring to detect screen overuse and promote healthier work habits through intelligent break recommendations and posture feedback.

INTERESTS

- Artificial Intelligence
- Machine/Deep Learning
- Data Analysis
- Mathematics and Statistics
- Physics
- Solving the Rubik's cube
- Playing the guitar
- Mountain hiking
- Rock climbing

LINKS TO PROJECTS

[RAG Research Assistant](#)

[Radius Angle Augmentation Method](#)

[Playing Cards Object Detection](#)

[Real-time Musical Tonation Detection](#)

- Laboratory technician at the Faculty of Applied Mathematics, Silesian University of Technology**
October 2025 – present
Responsible for maintaining and developing the computing infrastructure used in research and teaching.
Conducts applied studies in machine learning, data visualization, and signal processing, supporting projects that combine mathematical modeling with artificial intelligence methods.
- SGH x Mastercard Hackathon**
May 2025
Advanced to the finals as one of 8 teams selected from 140 participating teams.
Developed a data-driven solution combining geospatial analysis, a scoring model, and a prototype web application to identify optimal locations for parcel locker placement.
- Research Collaboration with the Dean of the Faculty of Applied Mathematics**
Dec 2024 – present
Co-authored scientific articles in partnership with the Dean of the Faculty of Applied Mathematics at Silesian University of Technology in Gliwice.
- Data Science – Students Scientific Circle Member**
Oct 2024 – present
contributing to workshops, hackathons, and group projects focused on machine learning, data visualization, and statistical analysis.

Key projects:

RAG Research Assistant

An AI-powered research assistant built with Python and Django, integrating RAG architecture for scientific question answering. It uses Qdrant for semantic search, Ollama for local LLM inference, and LangChain for pipeline orchestration. The system downloads papers from arXiv, processes them locally for privacy, and provides sourced, context-rich answers through a Bootstrap-based interface.

Radius Angle Augmentation Method

This project presents a custom data augmentation method implemented in Python, designed to enrich numerical datasets by leveraging statistical properties and density-based sampling. The solution utilizes NumPy and Pandas for efficient data manipulation, Scikit-learn for preprocessing and validation, and Matplotlib and Seaborn for visualizing the augmented distributions and evaluation results.

Playing Cards Object Detection

This project is a real-time playing card recognition system built with deep learning using PyTorch and convolutional neural networks (CNNs). Trained on a structured image dataset, the model delivers high accuracy in classifying card rank, suit, and color. By integrating OpenCV, the system enables live recognition via webcam and provides tools for model evaluation, confusion matrix visualization, and training performance tracking.

Real-time Musical Tonation Detection

Live Tonation Classification is a real-time key (tonality) detection system for musical audio, designed for musicians, music technologists, and audio hackers. It analyzes live audio input (e.g., from a guitar, keyboard, or microphone), detects the dominant notes, and predicts the musical key (major/minor) on the fly.