

# ALEK PACHEMSKI

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## About Me

As a Software Engineering student, I have built extensive experience in web and software development, creating intuitive digital products. My projects include a published Firefox extension, a real-time Kanban platform with Next.js and Firebase, and a Discord bot. Success in international hackathons highlights my collaboration, innovation, and ability to deliver under pressure. Beyond tech, rugby and powerlifting have shaped my discipline, teamwork, and resilience — traits that enhance my professional life.

## Education

### B.Sc. in Software Engineering and Information Systems

*FINKI at Ss. Cyril and Methodius University of Skopje*

Skopje, North Macedonia

2020 – 2025

### “Orce Nikolov” High School

*Bilingual High School Diploma*

Skopje, North Macedonia

2016 – 2020

## Experience

### Piping Rock Club

*Service Industry Professional – Work and Travel Program*

New York, USA

Jun 2022 – Oct 2022

- Worked over 100 hours each week, showing a strong commitment to the job.
- Entrusted by management as a key organizer for major events due to demonstrated reliability and leadership.

### GetOut.mk

*Product Design and Business Development Associate — IT Startup*

Skopje, North Macedonia

May 2020 – Aug 2020

- Designed product visuals for the B2B platform, improving user engagement and interface quality.
- Managed client outreach and contract negotiations, expanding business partnerships.

## Projects

### Zemi - Browser Extension

[Add-ons Store](#) | [GitHub](#)

- Bulk image downloader for messaging boards with smart hashing, image filtering, and custom download locations. Available on the Firefox add-ons store.

**Technologies:** JavaScript, Firefox Add-ons API, Content Security Policy

### Kanban Task Management Platform

[GitHub](#)

- Independently designed and built a fully-functional Trello-like real-time Kanban board with drag-and-drop, authentication, persistent state management and CRUD operations, detailed card views and commenting functionality.

**Technologies:** Next.js, Firebase, TypeScript

### Discord Bot

[GitHub](#)

- As part of a larger IoT plant care project, created a Discord bot that sends real-time push notifications for watering schedules, syncs with a remote server via API calls.

**Technologies:** Java (JDA), API Integration

### Real-Time Diabetes Prediction Pipeline with Apache Spark

[GitHub](#)

- Deployed a real-time ML pipeline that processes live health data streams using Apache Spark Structured Streaming, ingests data via Kafka, and applies optimized classification models for diabetes prediction.

**Technologies:** Python, Apache Spark, Kafka, Machine Learning

## Publications

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### Consumer Behavior Towards Eco-friendly products in the Western Balkans

*Operational Research Paper*

*Nov 2024 – Jan 2025*

- Preprint paper accepted for presentation at the [Mathematics and Application Conference](#) (March 2025).
- Developed unsupervised clustering models using Eurostat socioeconomic data to identify and analyze groupings among Western Balkan countries, providing actionable policy insights based on quantitative results.
- Collaborated with professor [Violeta Cvetkoska](#) from the Faculty of Economics.

### Enhancing Music Genre Classification: A Divide and Conquer Strategy

*Machine Learning Research Paper*

*Aug 2023 – Feb 2024*

- Published at the [ETAI Conference](#) (Sept 2024), DOI: [10.5281/zenodo.14054137](#)
- Developed a classical machine learning model for musical genre classification that leverages a layered model architecture for improved accuracy
- Collaborated with a student and professor [Hristijan Gjoreski](#) from the Faculty of Electrical Engineering

## Skills

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### Programming Skills

- Proficient: JavaScript, Java
- Familiar: Python, TypeScript, Swift, SQL (MySQL, SQLite)
- Exposed to: C, C++

### Frameworks & Technologies

- Next.js, Next.js, Docker, Git, SwiftUI, Bootstrap, Spark, Node.js, Bash, HTML/CSS

### Languages

- Macedonian (Native), English (Professional), German(Elementary)

## Awards & Achievements

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### Blaise Pascal Quantum Challenge - Finalist

[GitHub](#)

*Month Long Quantum AI Hackaton*

*Feb 2025 – Ongoing*

- Selected as one of the top 15 teams from over 800 participants in an international quantum AI competition organized by [Pasqal](#) to develop sustainable solutions aligned with the UN Sustainable Development Goals (SDGs).
- Collaborated in an interdisciplinary team of 6 to develop a quantum-enhanced real-time wildfire containment algorithm, using neural network predictions and QUBO-based optimization for efficient resource allocation.
- Final phase on 26th March.

### T.I.M.E.S Tournament for Management and Engineering Skills

*First Place at National Level*

*Jan 2024 – June 2024*

- A student-level case study competition organized by [MIKROSAM](#) and ESTIEM for Industrial Engineering and Management.
- Our team advanced to Izmir, Turkey for the semi-finals where we competed with teams from all over the world and placed **6th**
- Worked within a limited time-frame to analyze industrial line problems and provide optimal solutions.

### UNIJA Challenge

*Second Place at National Level*

*Nov 2023*

- A student-level software engineering competition for the development of a mobile application organized by [UNIJA](#)
- Designed the system architecture and collaborated with the other team members to develop the complete SRS document for an accounting mobile application