

# Nikola Trajanovski

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## ABOUT

Nikola Trajanovski, 23 years old, born and raised in Macedonia. Division 1 and semi-professional swimmer, full-time college student.

Multiple time Macedonian swim champion. Represented N. Macedonia at the European Swim Championships, Belgrade, Serbia 2024. Currently part of Division 1 Southern Illinois Swim Team.

## EDUCATION

### Southern Illinois University, Carbondale— BA

AUGUST 2024 - MAY 2026 ([Currently enrolled](#))

-Major: Computer Science, with tracks in: Software Engineering, Cybersecurity and Machine Learning

-Part of SIU Division 1 Swim Team

Current GPA 3.0

### Iowa Central Community College, Fort Dodge— AA

AUGUST 2021- MAY 2023

Part of ICCC Swim Team

## Projects /Portfolio

([all projects and more available on my github](#))

### Substitution Cipher Encryption Tool- C++, GNOME Shell

- Build a simple terminal tool for encrypting and decrypting text files. A command-line tool written in C++ that encrypts and decrypts text files using a printable ASCII Caesar (shift) cipher. The original Caesar cipher had 26 elements, but this implementation considers all printable 'ascii' characters.
- This project applies modular arithmetic to perform character shifting over the 94 printable ASCII characters ('!' to '~').
- This was done as an exercise related to cyber security and cryptography.

### Facial Recognition Authentication System - Python, OpenCV, NumPy, dlib.

- This project is a real-time face recognition authentication system built with Python, OpenCV, and the `face_recognition` library. It captures live webcam input, performs face detection and embedding generation, and verifies identity using distance-based facial encoding comparisons.
- The system is designed to be a scalable architecture, making it suitable as a baseline for larger authentication, security, or AI-driven identity verification applications.

## WEB STATUS

[LinkedIn Profile](#)

[GitHub Profile](#)

[Personal Web Page](#)

## TEAM SKILLS

Multitasking

Communication with customers

Fast learner

## PROGRAMMING STACK

OpenCV(image library), NumPy, JS/TS, TailWind, NodeJS, React

## PROGRAMMING LANGUAGES

C++, C, Python, SQL, Java Script

## LANGUAGES SPOKEN

English, Macedonian, Serbian

## PROFESSIONAL SKILLS/CERTIFICATIONS

Cybersecurity, AI &Software Engineering with to-be completed Bachelors of Arts degree from Southern Illinois University (2026)

Querying Data / Working with databases

AI Professional Skills

## **Personal Website - HTML, CSS, JS**

- I built my personal website as a fun programming project, but it also served as digital design practice. I learned the fundamentals of writing code that scales.

## **File Type Identifier - C, Ubuntu**

- Developed a Linux command-line file type identification tool in C that analyzes file headers using magic numbers (hexadecimal signatures) to determine true file formats independently of file extensions.

## **Algorithmic**

- Analyzed and compared Merge Sort, Quick Sort, and Heap Sort, evaluating time and space complexity across best, average, and worst cases to identify performance tradeoffs.
- Developed and compared an analysis of self-balancing binary search trees. The evaluation consisted of AVL trees, Red-Black trees, and Splay trees based on balancing strategies, rotation behavior, and operational performance. The project examined insertion, deletion, and lookup complexity, highlighting tradeoffs between strict balancing, amortized performance, and real-world efficiency under different access patterns.

