VLADYSLAV HIRCHUK

Software Engineer | C++Developer

📍 Gdynia, Poland, 81-225 | ✉ hirchukv@gmail.com | 📱 +48 513 312 032
🔗 GitHub: <u>SoloScriptSage</u> | LinkedIn: <u>vladyslavhirchuk</u> | Portfolio: <u>SoloScriptSage</u>

SKILLS:

Core Languages: C++, C, Python, C#, Java, JavaScript, PHP
Systems & Tools: Windows API, Linux, Git, Arduino, .NET Framework
Databases: MySQL, PostgreSQL, MariaDB
Frameworks & Libraries: OpenCV, Vosk, MediaPipe, Unity, dlib
Development: Algorithm Design, System Architecture, Performance Optimization, Legacy Code Maintenance

WORK EXPERIENCE:

College of DuPage
Software Engineering Tutor | January 2024 – May 2024

- Mentored students in advanced C++ concepts, data structures, and algorithm optimization
- Led workshops on code refactoring, object-oriented design patterns, and performance tuning
- Provided guidance on debugging complex codebases and improving code maintainability
- Conducted group discussions on software architecture and system design principles

Khmelnitsky Polytechnic Professional College
Database Developer & Backend Engineer | May 2023 – August 2023

- Designed and maintained MySQL databases with optimized schemas ensuring data integrity
- Developed student management system with PHP, HTML, CSS frontend integration
- Implemented CRUD operations for student registration, course enrollment, and grade tracking
- Optimized database queries and improved system response times through performance tuning
- Provided technical support and troubleshooting for database-related issues

RELEVANT PROJECTS:

WinAPI System Monitor (C++)

Windows API, System Programming, Real-time Monitoring

- Built native Windows application using pure Windows API for system resource monitoring
- Implemented low-level system calls for CPU, memory, and process tracking without third-party frameworks
- Demonstrated deep understanding of Win32 programming and system-level architecture
- Focus on performance and minimal resource overhead

Ray-Ban Voice Camera HUD (Python, C++)

Computer Vision, Speech Recognition, Real-time Processing

- Developed voice-controlled camera system with offline speech-to-text using Vosk
- Integrated OpenCV for real-time video processing with face detection (dlib) and hand tracking (MediaPipe)
- Implemented multi-threaded audio/video recording with synchronization and ffmpeg integration
- Built dynamic overlay system with command debouncing and state management
- Engineered camera backend auto-discovery with caching for optimized startup performance

8deck–s17: Blackjack Simulator (C++)

Computer Vision, Speech Recognition, Real–time Processing

- Developed Monte Carlo simulation engine for 8–deck blackjack
- Implemented card counting strategies and probability analysis algorithms
- Optimized performance for large–scale simulations analyzing millions of hands
- Applied statistical methods to evaluate game profitability

Robotic Hand Prototype (Arduino, C++)

Embedded Systems, Wireless Communication, Hardware Integration

- Designed adaptive prosthetic hand with wireless control using Arduino Nano and NRF24L01+ modules
- Programmed embedded C++ for real–time motor control and sensor data processing
- Implemented adaptive grip algorithms responding to pressure sensors
- Created communication protocol for low–latency wireless command transmission

Student Database Management System (PHP, MySQL)

Database Design, Backend Development, System Architecture

- Built comprehensive CRUD system for academic data management and reporting
- Designed normalized database schema optimizing for query performance and data integrity
- Developed backend logic handling concurrent user access and transaction management
- Implemented secure data validation and error handling mechanisms

EDUCATION:

Bachelor's Degree, Computer Engineering
Lviv Polytechnic National University | Lviv, Ukraine *August 2023 – May 2026*

Focus: Artificial Intelligence, Machine Learning, Cybersecurity, Microcontroller Systems

Associate Degree, Software Engineering
College of DuPage | Illinois, USA
August 2023 – May 2026

Focus: Advanced C++, Python, Java, Cybersecurity, UI/UX, Databases

Junior Specialist, Computer Engineering
Khmelnitsky Polytechnic Professional College | Khmelnytskyi, Ukraine
September 2019 – May 2023

Focus: Algorithms & Programming, Computer Systems, System Programming

CERTIFICATIONS & ACHIEVEMENTS

- **C++ Proficiency |** College of DuPage
- **Python Proficiency |** College of DuPage
- **Computer Security Fundamentals |** uCertify
- **TOEFL iBT: B2 Level English |** ETS
- **ICPC Certificate of Achievement |** Southwest Ukraine Competition 2021
- **U.S. Department of State Higher Education Initiative Scholarship**