# Arthur Zarankin

## C++ | CUDA Software Engineer | Computer Vision & Deep Learning Specialist

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## Summary

Experienced software engineer with a strong focus on performance systems involving C++, Python, CUDA, and AI. Proven track record in optimizing real-time pipelines for computer vision and neural network inference on GPU-accelerated platforms. Passionate about low-level performance, embedded deployment, and algorithmic innovation.

## Skills & Abilities

- *Programming: C++, Python, CUDA, OpenCL, Bash*
- *Frameworks: TensorRT, DeepStream, OpenCV, PyTorch, ONNX*
- *Optimization: multithreading, memory efficiency, latency reduction, GStreamer pipelines*
- *Tools: Docker, Git, Linux, Visual Studio, NVIDIA Jetson SDKs, Nsight Systems & Nsight Compute (GPU profiling, kernel tuning, stream concurrency)*
- *Domains: Real-time vision, Embedded AI, Deployment & acceleration*
- *Cloud Platforms: Azure (deployment, monitoring, messaging)*
- *Frameworks: .NET (C#, desktop apps, multi-threading, custom UI components)*
- *Full-Stack Development: React, Node.js, Express, REST APIs, MongoDB, PostgreSQL, MySQL.*
- *Backend integration for AI pipelines and remote control dashboards (e.g., arthurcam.com).*
- *Database & System Design: UML-based modeling for business and real-time systems, including geospatial (PostGIS) and vector search (pgvector, FAISS).*

## Experience

### CUDA Developer – Performance Optimization and AI 01/2023 – 01/2025

OpTeamizer
Yokneam, Israel

*Contributed to a cross-functional team developing high-performance vision pipelines for GPU-accelerated platforms. Focused on optimization, deployment, and benchmarking of AI inference workflows using CUDA, DeepStream, and TensorRT. Projects included commercial and defense use cases.*

- Built scalable AI solutions using LLMs, OpenCV, and DeepStream SDK for real-time image analysis.
- Converted object detection models to TensorRT, reducing latency by 40% for Disney.
- Optimized CUDA-based processing for Army and KLA, achieving 50% performance gains.
- Deployed facial recognition + social media API system for missing persons detection.
- Improved video comparison by 30% via distributed processing on Databricks.

## Education

**M.Sc. in Computer Science (in progress),**
The Open University of Israel | 2025–Present

• Graduate-level coursework with a flexible schedule. Focus on AI systems, distributed computing, and algorithm design.
• The program is compatible with full-time employment.

**B.Sc. in Information Systems Management & Software Development,**
The Max Stern College | Emek Yezreel - GPA: 87 – 2017–2021

• Combined CS theory with business systems: architecture, distributed computing, data structures, and cloud services (Azure).
• Hands-on modules in project planning, entrepreneurship, and backend development.
• Final-year projects focused on AI for business insights and automation.
• Built a full-stack web dashboard (MySQL + backend) for real-world data management.

**Prior Studies: Electrical & Electronics Engineering,**
Ariel University | 2011–2013

Completed two years in a competitive B.Sc. program focused on core embedded and system design.
• Circuit theory, control systems, signal processing, digital systems, microcontrollers, and C programming.
• Practical lab work and low-level development on embedded platforms.
• Transitioned into software-focused studies to pursue AI, systems programming, and applied computing.

**Specialization Program** – Applied AI & Embedded Systems (1000+ hours)| 2022

Industry-level training (no degree) focused on deep learning, CUDA, and robotics:
• Projects in face recognition, robotics control, and optimized inference pipelines.
• Used C++, .NET, and Azure Cloud for integration and deployment.
• Tools: NVIDIA Jetson (Xavier, Orin), TensorRT, OpenCV, ROS, GStreamer, Docker.
• Implemented geospatial database queries using PostgreSQL + PostGIS for spatial search and area coverage detection, simulating logistics and delivery use cases.

## Personal Project

- **Facial Recognition & Identity Matching**
  Built a full face recognition pipeline combining lightweight face detection (SCRFD) and embedding extraction (e.g., ArcFace). Implemented identity re-matching across sessions using PostgreSQL with vector similarity search (cosine distance).

- **Multi-Camera Person Tracking System**
  Built using NVIDIA DeepStream SDK and Metropolis sample apps on x86_64 platform. Combined object detection, person tracking, and cross-camera ID stitching across 4 RTSP streams.
- **Voice-Controlled Robot Agent**
  Developed a real-time, fully offline voice-command system on Jetson Orin NX (16GB) using NVIDIA NeMo (ASR + TTS). The system interprets speech and controls a Rosmaster X3 Plus robot arm with zero cloud latency.
  https://agent.w3arthur.com/
- **arthurcam.com – Smart Home Control & Live Stream (IoT Demo)**
  Developed a real-time web interface for controlling an embedded device remotely over the internet. The system streams live webcam footage and supports remote actions (LED on/off, message display) via WebSocket and REST APIs. Deployed as a minimal smart-home prototype using open web technologies.
  https://arthurcam.com
- **Jetson Xavier AGX 32GB – Community Donation & Onboarding Kit**
  Organized a full public giveaway of an industrial-grade Jetson Xavier AGX development kit, including hardware, setup documentation, and personal onboarding. Aimed to support aspiring AI/Robotics developers in Israel. Outreach included a detailed LinkedIn campaign and direct support for selected recipients.
  https://xavier.w3arthur.com/

## Certifications

- **Applications of AI for Predictive Maintenance** – NVIDIA DLI Certified
- **Efficient LLM Customization –** NVIDIA DLI Certified
- **Building Conversational AI Applications –** NVIDIA DLI Certified
- **Getting Started with Deep Learning –** NVIDIA DLI Certified
- **Fundamentals of Accelerated Computing with CUDA C/C++ –** NVIDIA DLI Certified
- **GSI NVIDIA Technologies Training –** NVIDIA Partner Network
- More certifications: https://certifications.w3arthur.com
- **Industry-oriented program with extensive hands-on training and deployments using Jetson, Azure, and real-time AI systems.**
  1000+ hours of hands-on training focused on deep learning, computer vision, CUDA, embedded Linux, and cross-platform software engineering.
  Included real-world projects in C++ and .NET, deployment to Azure Cloud, and full-stack integration of AI systems on NVIDIA Jetson & x86 platforms.
  Projects ranged from face recognition and robotics to optimized low-latency video pipelines and real-time control systems.