

arinupadhyay.cs@gmail.com

+48 571-525-306

Kraków, Poland

Eligible to work in Poland

GITHUB: <https://github.com/shinymonitor>

Arin Upadhyay

I am a motivated Computer Science student with hands-on experience across embedded systems, cryptography, AI/ML, and game development. I design and implement low-level software for embedded platforms, build robust peer-to-peer networking stacks and secure protocols, and apply practical cryptography to protect data and communications. I also develop AI/ML models integrated into real-time systems and develop performant game engines and interactive experiences. I am passionate about building and optimizing software for performance, security, and reliability, while working in collaborative environments and continually learning new skills.

PROJECTS

EFPIX (Encrypted Flood Protocol for Information eXchange) [\[here\]](#)

A zero-trust, encrypted flood-based relay communication protocol designed for privacy, resilience, and metadata protection. It enables end-to-end encryption, plausible deniability, and untraceable messaging, even in hostile or degraded network environments.

[Whitepaper, Protocol Design, LaTeX, Peer-to-peer networking, Cryptography, Embedded systems]

QMTIK (Quantized Model Training and Inference Kit) [\[here\]](#)

A minimal, lightweight and dependency-free implementation of a quantized neural network designed for embedded systems and resource constrained environments. It uses 8-bit integer quantization for both weights and activations, enabling efficient inference on microcontrollers and edge devices for real-time applications. It can achieve 4x smaller model size, 2-4x faster inference, and minimal, if not none, accuracy loss.

[C, Low-level programming, AI/ML, Embedded systems]

Cazpyr [\[here\]](#)

A heap-less, lightweight, and dependency-free terminal-based text editor. It supports common key bindings, window size adapting, custom colors and build and run shortcuts.

[C, Low-level programming]

Heapless Zig RSA [\[here\]](#)

Single-file library for heap-less implementation of RSA encryption and signatures in Zig with OAEP+ padding using hashing function from standard library

[Zig, Low-level programming, Cryptography]

NCT (NiCeTy) [\[here\]](#)

It is a lightweight command-line project manager for C projects. It helps you quickly initialize, build, test, and run C projects with a simple configuration system.

[C, Tooling]

FAST3SAT [\[here\]](#)

A deterministic solver for a subset of 3SAT problems using frequency-based greedy variable assignment for efficient solution discovery.

[C, Python, Algorithms]

SKILLS

Languages: C, Zig, Python, SQL

Domains: Low-level programming, Peer-to-Peer Networking, Embedded Systems, AI/ML, Cryptography, Secure Protocol Design

Developer Tools: Git, Docker, Linux, C-Tooling (Make, GCC/Clang)

EXPERIENCE

Club

AstroDevelopers (AGH):

Designed and specified EFPIX, a novel zero-trust communication protocol for resilient, metadata-protecting messaging in hostile environments. Authored the formal whitepaper detailing its architecture and security model.

GIIS Tech Club (GIIS Singapore):

Head of Game Development.

Led and judged game dev submissions at a tech hackathon.

Internship

AIYA (Corporate Gurukul) [Sep 2021-May 2022]:

Completed a competitive corporate course focused on AI/ML and its practical implementations. Achieved 2nd in the in-course final project competition to develop innovative AI models.

Volunteering

4s NGO:

Volunteered as Marketing and Technical Assistant and prepared marketing material and edited videos including animation and video production.

EDUCATION

AGH University of Science and Technology [Oct 2023-Expected 2027]

Bachelor of Computer Science (English)

GIIS Smart Campus (Punggol), Singapore [Oct 2021-Mar 2023]

Awarded a full scholarship for CBSE 11 & 12 (GIIS Smart Campus, Singapore).

LANGUAGES

English: C1 (IELTS)

Polish: A1 and avid learner

Hindi: Native

German: Intermediate