Arin Upadhyay

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EDUCATION

AGH University of Science and Technology　　　　　　　　　　Oct 2023 - Expected March 2027
Bachelor of Computer Science　　　　　　　　　　　　　　　　　　　　　　　Kraków, Poland

SKILLS

Languages : C, Zig, Python, Assembly
Domains : Embedded Systems, Low-Level Programming, Protocol Design, Cryptography
Tools : GCC, Clang, Make, GDB, Valgrind, Git, Linux, RTOS
Hardware : SPI, I2C, UART, GPIO, ARM Cortex-M, SoCs

PROJECTS

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

- A zero-trust, encrypted flood-based relay communication protocol designed for end-to-end encryption, plausible deniability, and untraceable messaging, even in hostile or degraded network environments.
- Includes a full C implementation with modern encryption stack. [here]
- *[Whitepaper, C, 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 can achieve 4x smaller model size, 16x faster inference, and <1% accuracy loss.
- *[C, Low-level programming, AI/ML, Embedded systems, Memory Optimization]*

Heapless Zig RSA [here]

- A single-file, zero-allocation library for RSA encryption and signatures in Zig with OAEP+ padding.
- It provides fast encryption and decryption using Montgomery Multiplication and PEM key storage.
- *[Zig, Low-level programming, Cryptography]*

More... [here]

LANGUAGES

English: Native (IELTS C1 Certified)
Hindi: Native

ACHIEVEMENTS & LEADERSHIP

AI/ML Trainee, *AIYA (Corporate Gurukul)*
Selected for a competitive course taught by NTU and HPE on AI/ML applications and achieved 2nd place in the final project competition.

Head of Game Development, *GIIS Tech Club (Singapore)*
Led and judged game development submissions at a tech hackathon. Taught a full course on game dev in Unity.

Volunteer Marketing and Technical Assistant, *4s NGO (Singapore)*
Volunteered as Marketing and Technical Assistant and prepared marketing material, video production and animations.