

# Anjan Roy

Senior Cryptography Engineer, Cryptography Research Center, Technology Innovation Institute, Abu Dhabi

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## Objective :

To work in an environment that provides high standards of intellect, professionalism and moral ethics, solve problems that helps us in understanding mysteries of the nature, be part of a team that works towards growth of society and enhance my skill sets while adopting newer methodologies.

Email : [hello@itzmeanjan.in](mailto:hello@itzmeanjan.in)

Gender : Male

Website : <https://itzmeanjan.in>

Nationality : Indian

Github: <https://github.com/itzmeanjan>

## Experience :

### Senior Cryptography Engineer @ CRC, TII, Abu Dhabi [ June, 2023 - Present ]

- Leading development, testing and release of the side-channel resistant light-weight symmetric key cryptography library in C.
- Used bit-interleaving with ARM NEON ISA, achieving >30% throughput boost over baseline.
- Used AVX, ARM NEON for vectorized Ascon, SHA3 and TurboSHAKE implementation in C, for use in PQC schemes.
- Developed side-channel-resistant, constant-time open-source libraries in C++ for symmetric (e.g., Ascon, SHA3) and post-quantum cryptographic schemes (e.g., ML-KEM, ML-DSA, SLH-DSA, Raccoon, Falcon, Saber, FrodoKEM).
- Developed fastest known LWE -based Private Information Retrieval library in Rust.
- Offloaded LWE -based PIR Server-Setup Phase to GPU, using Vulkan Compute, achieving 60x performance boost.

### Blockchain Engineer @ Polygon Labs ( aka Matic Network ) [ July, 2020 - May, 2023 ]

- Implemented symmetric, asymmetric cryptographic primitives in zkSTARK -based Miden VM using WASM like assembly.
- Fastest Merklization with Blake3 and Rescue Prime hash functions, using SYCL and OpenCL, for a wide range of targets.
- Helped in building light-client for KZG commitment-based Data Availability blockchain Avail, using Rust.
- Wrote and maintained Solidity contracts, powering L1 <-> L2 asset transfer - secured > \$7B back then.
- Developed simple and reliable micro-service based cross-blockchain transaction life-cycle tracker, in Go.
- Designed and developed fast-finality, cross-blockchain, trusted asset transfer bridge for ecosystem project, in Go.

### Freelance Developer [ July, 2018 - June, 2020 ]

- Wrote custom ERC20 contract (with locking, staking) for leading marketplace.
- Reduced latency by 53% after introducing Memcached, Redis in existing service.
- Built JSON-RPC/ REST services with ExpressJS, PostgreSQL.
- Helped researcher explore large dataset using Matplotlib, Seaborn, Numpy.
- Helped client target large user base by building multi-platform app in Flutter.

## Academics :

Course Name	University	Year of Passing	GPA
M.Sc. ( Computer Science )	Visva-Bharati, Santiniketan, India	2020	8.89
B.Sc. ( Computer Science )	Visva-Bharati, Santiniketan, India	2018	8.87

## Interest :

Post-Quantum Cryptography, Light-Weight Cryptography, Privacy Preserving Computing and Performance Optimization of Cryptographic Schemes on a wide range of architectures including GPU.

## Skills :

Responsibility, Patience, Diligence