

TONY ROCCO VALENTINE

Backend Engineer / Security Researcher

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WORK EXPERIENCE

Dedaub

Malta

Security Researcher

Sep 2024 – Present

- Performed in-depth security audits for blockchain and DeFi protocols, such as Chainlink, to identify vulnerabilities and assess design decisions prior to deployment
- Continuously examined Ethereum research to evaluate the potential impact of updates and remain informed about protocol advancements

Software Engineer

May 2022 – Sep 2024

- Developed internal framework for low latency Blockchain ETL, processing data from over eight EVM chains
- Designed and optimised database operations, including overseeing the migration from MySQL to PostgreSQL with TimescaleDB
- Architected and developed backend systems, including OpenAPI-compliant REST APIs using FastAPI, web scrapers, ELT pipelines with DBT and PL/Rust, and batch processing systems
- Conducted two research studies for the Ethereum Foundation (EF) to analyze the impact of proposed EIPs on deployed smart contracts, via a combination of data science as well as static and dynamic program analysis techniques

Intern

Jul 2021 – May 2022

- Evaluated Ethereum node implementations for high-performance ETL applications
- Developed internal tools to support a Blockchain Explorer (e.g. transaction debugger)
- Contracted by the Ethereum Foundation (EF) to evaluate proposed gas changes under the EVM Verkle model via contract simulations over an instrumented EVM

University of Malta

Malta

Teaching Assistant - Part Time

Oct 2024 – Jan 2025

- Assisted with the “Blockchain and Smart Contracts” course (ICT3009), contributing to the design and development of the course structure, lectures, and teaching materials
- Supported students in the “Programming Principles in C” course (CPS1011), enhancing their understanding of C, fundamental programming concepts, and essential soft skills like Git and Unix systems

Teaching Assistant - Part Time

Oct 2022 – Jan 2023

- Guided students in the “Object Oriented Programming” course (CPS2004), facilitating comprehension of Java, C++, and OOP principles through practical exercises and assignments

EDUCATION

University of Malta

Msida, Malta

Bachelor of Science (Honours) in Computer Science

Oct 2019 – Jun 2022

- **Honors:** First Class Honours, Dean’s List, 3rd Best Undergraduate Thesis, Highest overall marks in cohort
- **Thesis:** Smart Contract Proxy Analysis

RESEARCH AND PUBLICATIONS

Program Analysis for High-Value Smart Contract Vulnerabilities: Techniques and Insights

Presented at *The Science of Blockchain Conference 2023*

Sep 2023

EIPs-6404 and 6466: An Impact Study on the transition to SSZ for contracts Relying on Proofs of RLP-Encoded Data

Produced for the Ethereum Foundation (EF)

Jun 2023

Removal of SELFDESTRUCT: An Impact Study on EIP-4758 & EIP-6780

Produced for the Ethereum Foundation (EF)

May 2023

Verkle Trees: Impact study on existing smart contracts

Produced for the Ethereum Foundation (EF)

Jul 2021

TALKS

How to Predict the Impact of EVM Upgrades

[Web3FC](#) (Barcelona, Spain)

Apr 2024

[ETHTaipei](#) (Taipei, Taiwan)

Mar 2024

PROJECTS

[manifold](#)

Dedaub

May 2023 – Sep 2023

- Developed a modern pythonic wrapper for the Multicall contract, with automated batching and retries to enable high performance on-chain data ETL pipelines

[pySAD](#)

Dedaub

Apr 2023 – May 2023

- Developed a minimalist library to enable EVM transaction decoding, including functions, errors, events (logs), constructors and precompiles

SKILLS, LANGUAGES, INTERESTS

- **Languages:** English (Native speaker), Maltese (Native speaker)
- **Soft Skills:** Public Speaking, Leadership, Technical Writing
- **Programming:** Python, Golang, SQL (PostgreSQL) + PL/pgSQL, Solidity, Rust
- **Tools:** Git, Docker, Unix (GNU + Linux)