

Giovanni Mazzeo, PhD,
Software Engineer |
Researcher |
Associate Professor

Birth Date: 02/09/1989
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LANGUAGES

Italian: Mother Tongue
English: Advanced
Spanish: Advanced

WORK EXPERIENCE

2025-Present — CIO & Senior Software Engineer

Trillion Inc. (DUBAI)

- Implementation of Solana and Ethereum smart contracts for decentralized attestation verifications Led the design and implementation of Proof of Trusted Execution (PoTE), a multi-vendor TEE-based blockchain consensus protocol enabling deterministic, sub-second finality for high-throughput DEXs
- Architected and implemented a PoTE-enabled Ethereum consensus client by extending Lighthouse with TEE-backed block attestation, cross-vendor verification, and fork-free finalization
- Developed smart contracts and verification logic on Ethereum and Solana to support decentralized attestation, code-hash validation, and secure on-chain settlement

2019–Present — Associate Professor in Computer Security

University of Naples Parthenope (IT)

- Teaches “Cloud & OS Security” and supervises PhD research on hardware-based trusted computing and blockchain
- Published 50+ peer-reviewed papers in top-tier journals and conferences
- Coordinated technical work packages in EU-funded cybersecurity projects
- Skilled in mentoring, academic writing, and cross-institutional project management

2022–2025 — Senior Web3 Software Engineer

Credora Inc. (PT)

- Developed and maintained a dApp for DeFi asset ratings using TypeScript, Python, and Hardhat, enabling on-chain visibility into borrower creditworthiness.
- Designed and deployed Solidity smart contracts integrated with the Ethereum Attestation Service (EAS) to aggregate private off-chain credit attestations into cryptographically verifiable on-chain credit scores — the first implementation of its kind.
- Built a robust testing framework with unit and integration tests, improving smart contract reliability and deployment safety across networks.
- Collaborated with globally distributed teams in agile sprints, accelerating delivery of new protocol features.

2020–2022 — Senior Software Engineer

X-Margin Inc. (USA)

- Led the development of a confidential computing infrastructure leveraging Trusted Execution Environments (Intel SGX) for privacy-preserving credit scoring.
- Engineered secure computation solutions in C++, Python, and WebAssembly, integrating advanced cryptographic techniques such as zero-knowledge proofs (ZKPs) to ensure data confidentiality and verifiable integrity.
- Designed and executed comprehensive test suites to benchmark enclave performance and security guarantees.
- Fostered a collaborative, research-driven engineering culture that balanced cutting-edge cryptographic research with production-grade deployment.

2018–2023 — Software Engineer

Trust Up srl (IT)

- Built a TEE-enabled eHealth platform with C++ and Python, supporting privacy-preserving ML analytics
- Conducted security assessments and experimental validation
- Demonstrated adaptability in addressing low-level integration issues

2018–2019 — Postdoctoral Researcher

University of Naples Parthenope (IT)

- Focused on secure system design with ARM TrustZone and threat modeling for embedded systems

2016–2017 — Visiting PhD Student

Technische Universität Dresden (DE)

- Developed a Rust-based performance tuning tool targeting TEE deployments
- Engaged in cross-lab research, adapting solutions for heterogeneous platforms

2015–2018 — PhD Student

University of Naples Parthenope (IT)

- Conducted research on Cloud Security and Data-in-Use protection using TEE technologies
- Gained experience in writing research proposals and presenting findings at conferences

2014–2015 — Software Engineer

Scuderia Toro Rosso F1 Team, Faenza (IT)

- Contributed to software components in the Formula 1 telemetry stack

SUMMARY

- Strong programming skills in **C/C++, Python, Solidity, Typescript, Rust.**
- Expert of **Blockchain** technologies and **Smart Contract** development
- Expert of **TEE technologies** and related SDK/Runtimes
- Proficient with **WebAssembly** runtimes (e.g., WAMR, WasmEdge).
- Proficient with **DevOps workflows** (Azure, Jenkins, GitHub Actions) and CI/CD pipelines
- **Project management (WP Leader)** experience in 6+ H2020-HorizonEurope projects.
- **Author and co-author of 60+ peer-reviewed research papers** in the field of cybersecurity, confidential computing, and blockchain.
- Principal Investigator in 10+ EU projects
- Strong communication and mentoring skills, with experience leading interdisciplinary teams and supervising PhD students
- Problem-solving mindset, attention to detail, and ability to work independently or within distributed teams under tight deadlines

2013–2014 — Visiting Scholar
West Virginia University, Morgantown (USA)
Built a Java-based biometric processing system using Hadoop

EDUCATION

- **PhD in Information Technology @ University of Naples 'Parthenope'**
2018-2015 | Thesis: "Trustworthy Cloud Provisioning via Emerging CPU Security Extensions"
- **Master's Degree in Computer Engineering @ University of Naples 'Federico II'**
2014–2012 | Grade: 110/110 with Honors | Thesis: "Biometrics on Cloud: Tools and Performance"
- **Bachelor's Degree in Computer Engineering @ University of Naples 'Federico II'**
2011 – 2008 | Grade: 110/110 | Thesis: "Design of Dual Core Systems"

TECHNICAL SUMMARY

Programming Languages	C/C++ (8+ years), Python (6+ years), Rust (1+ year), Solidity (3+ years), Typescript (1+ year), ARM Assembly, x86 Assembly
Web3 Tools	Hardhat, Ethereum Attestation Service, Automata, WebAssembly, ZKPs, Rollups (e.g., Optimism), IPFS, Remix
Trusted Execution Environment	Intel SGX, Intel TDX, AMD SEV, and ARM TrustZone
TEE SDK and Runtimes	Intel SGX SDK, OP-TEE, Occlum, Gramine, WAMR-SGX, Azure Attestation Service
DevOps Tools	Docker/Docker-Compose, Kubernetes, Azure Cloud, GCP, Jenkins, Jiira, Azure Pipelines.
SQL/NoSQL Databases	MySQL, PostgreSQL, MongoDB, Sqlite, Redis, InfluxDB
Big Data Frameworks	Hadoop MapReduce, hBase, Hadoop Distributed File System (HDFS), Hadoop Yarn
Microservice Frameworks	Vert.X, Spring
Cloud Platforms	Google Cloud Platform, Microsoft Azure, AWS
Statistical Methodologies	Design of Experiments (DOE), Benchmarking, ANOVA Analysis, Principal Component Analysis (PCA).

PUBLICATIONS

Author of 60+ publications in the field of Cybersecurity and Blockchain.

Google Scholar → <https://scholar.google.com/citations?user=V6eVjpEAAAAJ&hl>

Number of Citations: 865

H-Index: 14

EUROPEAN RESEARCH PROJECTS

- Horizon Europe – A Scalable and Practical Privacy-Preserving Framework (ENCRYPT) – Technical Coordinator Assistant
- Horizon2020 – Cyber Securing Energy dATA Services (CyberSEAS) – Validation Task Leader
- Horizon2020 – Secure and Trusted Paradigm for Interoperable eHealth Services (KONFIDO) – Architecture Design Work Package leader
- Horizon2020 – Secure Enclaves for REactive Cloud Applications (SERECA) – Use case tools Work Package Leader
- Horizon2020 – Improving resilience of sensitive industrial plants & infrastructures exposed to cyber-physical threats, by means of an open testbed stress-testing system (InfraStress)