

# Marcos Mayorga

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## Summary

8 years experience leading roles Head of Engineering/CTO in blockchain startups, running dev teams in cooperation with C-suite roles.

Multidisciplinary developer/lead with over 20 years writing software across different industries finance, blockchain, supercomputing, aerospace, and distributed networks. Strong scientific foundation, with deep expertise in modern C++ (17/20/23), multithreading, real-time debugging, and simulation. Proven track record building mission-critical software in HPC environments, trading systems, and P2P infrastructure. Goal-oriented, team-driven, and focused on solving complex engineering challenges with precision and rigor.

## Core Skills

- Modern C++ (17/20/23)
- STL, multithreading
- Distributed Systems
- OOP, TDD
- Trading systems
- Airborne safety-critical
- CD/CI, GNU/Linux
- Debugging, profiling, optimization
- debian GNU/Linux
- low-latency systems
- Architecture
- Design patterns
- Embedded systems
- P2P Networks
- Fast time simulation
- compiler tooling

1st Langs C++, java, bash

2nd langs Rust, go, javascript, python and web langs.

Interest AGI/AI, Science, Technology, Innovation, Entrepreneurship

Research Blockchain and privacy wallets with role based agents and AI/LLM in distributed networks

## Education

1998 Graduated M.Sc. Physics. Solid State Physics. Universidad Autonoma de Madrid (Spain)

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## Experience

Feb 2024 – **CTO**, *Script Network*, London

- Jun 2025
  - Run high performance dev team enforcing discipline and routines.
  - Developed decentralized video streaming system with 2 L1 blockchain. Fork based on Theta (Go) + scriptv (C++).
  - Implemented business cryptoeconomics in PoS system.
  - Colaborated with Node reseller partners.
  - Mentored team and created the Script Network developer community.
  - Implemented automated deployment pipeline on cloud.
  - Responsible for weekly stage and production deployments on AWS and gcloud.
  - **Languages:** C++, Bash, goLang, javascript, java
  - **Tools:** Debian GNU/Linux, Git, systemd, nginx, mongoDB, redis, postgresSQL

April 2019 – **Founder CTO**, *KATLAS Technology*, London, UK

- Present
  - Co-founder of blockchain start-up focused on privacy-respecting distributed systems.
  - Tech partner providing consultancy and implementation task force for digital transformation.
  - Delivered MVP for the Health Industry integrating AI devices on a P2P platform.
  - Built the Plebble P2P crypto platform and healthcare product MaiHealth.
  - Maintainer of curated codebase with 120,000 lines of code.
  - **Languages:** C++, Bash
  - **Tools:** Bash, Debian GNU/Linux, Docker, Git, tmux

Jan 2021 – **Protocol Engineer**, *NEM - New Economic Movement*, London, UK

- Jul 2021
  - Built wallet-CLI SDK in C++ for Symbol blockchain.
  - Developed wallet interface to hardware wallets: Ledger, Trezor.
  - Researched distributed storage.
  - Helped integration with partners and exchanges under launch pressure.
  - Implemented consensus components and P2P protocol logic.
  - Received XYM token reward for performance during launch phase.
  - **Languages:** C++
  - **Tools:** confluence

Apr 2019 – **Co-founder / CTO**, *KATLAS Technology*, London

- Present
  - Secure enclaves using Morello CHERI architecture.
  - Development of platform and DEMOS of ecosystems with role-based agents.
  - Web3 Router. A design of a internet router integrating blockchain node and smart privacy wallets.
  - **Languages:** C++, Bash
  - **Tools:** debian Linux, git, FreeBSD, clang

- Apr 2018 – **Head of Engineering**, *Atlas City Finance*, London, UK
- Apr 2019
- Led a team of 9 engineers in the design and implementation of a novel experimental cryptocurrency platform.
  - Architected a resilient, consensus-based full-node operating system built on Debian GNU/Linux.
  - Designed the cryptographic wallet and peer-to-peer protocols for the system.
  - Mentored developers and coordinated cross-functional technical decisions.
  - **Languages:** C++, Bash
  - **Tools:** Debian GNU/Linux, GitLab
- Nov 2017 – **Senior Research Engineer**, *nChain*, London
- Apr 2018
- Served as a Bitcoin Cash researcher and C++ backend developer at a blockchain startup, with a focus on scalable untrusted P2P systems.
  - Produced Proof-of-Concept implementations for disruptive cryptographic and consensus mechanisms.
  - Authored technical white papers on experimental cryptocurrency designs and innovations.
  - Acted as main developer in the Bitcoin ABC task force; contributed 9 new opcodes for the May 2018 'Monolith' hard fork.
  - Developed 'swissknife', a standalone C++ utility for blockchain researchers.
  - Supported R&D efforts in smart contracts, zero-knowledge privacy, and verifiable computation.
  - Proposed and implemented new Bitcoin Script opcodes such as OP\_RAND and OP\_CHECKCOMP.
  - **Languages:** C++
  - **Tools:** Debian GNU/Linux, CMake, Git, LaTeX
- Nov 2017 – **Lead developer**, *nChain*, London
- April 2018
- Led the initial design and development of the Nakasendo SDK, nChain's Blockchain SDK.
  - Published the research paper 'Computing Non-Primitive Recursive Functions Using a Total Turing Language'.
  - Proposed and implemented extensions to Bitcoin-core scripting language with loop-related opcodes.
  - Developed a step-by-step debugger for Bitcoin Script.
  - Designed and implemented HLLC, a high-level language compiler targeting Bitcoin Script.
  - Created a protocol for fiat currency transfer via encoded Bitcoin transactions.
  - Researched and prototyped zk-SNARK circuits.
  - **Languages:** C++
  - **Tools:** Debian GNU/Linux, Git, Bitcoin codebase

Jun 2016 – **Senior Developer, ARM (Allinea), Warwick**

- Feb 2017
- Senior developer at a leading company in the High-Performance Computing (HPC) industry.
  - Maintained and enhanced the codebase of a flagship parallel debugging suite.
  - Optimized highly parallel scientific models on Cray and IBM Blue Gene platforms.
  - Handled advanced L2 technical support cases.
  - Co-Authored technical proposals for submission to the C++ Standardization Committee.
  - **Languages/libs:** C++, CUDA, Qt
  - **Tools:** Debian GNU/Linux, gdb, MPI, valgrind, slurm, JIRA, hg (mercurial), jenkins

Nov 2015 – **Senior Software Engineer, Airbus Defence & Space, Stevenage, London, UK**  
May 2016

- Simulation Engineer (contractor) in the Functional Verification division for space systems.
- Developed automated test procedures for flight hardware (reaction wheels) for the Solar Orbiter mission.
- Developed automated test procedures for electrical subsystems for the Mars Rover.
- **Languages:** C++, Java
- **Tools:** g++, gdb, eclipse

Aug 2011 – **Founder / CTO, FairLuck, Madrid**

- Nov 2015
- Founded and led an experimental venture exploring provably fair online gaming.
  - Designed and implemented a real-time multiplayer game server in C++.
  - Developed custom secure RNG and deterministic game state validation tools.
  - Presented technology to regulatory bodies including UK Gambling Commission.
  - Designed and implemented an investment product leveraging sportsbook betting markets.
  - Designed and implemented a Currency Exchange (Curex/trocavaluta).
  - **Languages:** C++, HTML, CSS, javascript
  - **Tools:** CMake, Debian GNU/Linux, svn, postgresSQL

- Sep 2006 – **Staff Senior Software Engineer (E4)**, *Boeing Research & Technology Europe*, Madrid  
 Jun 2011
- Airspace Simulation Software Architect and Technical Team Leader.
  - Introduced open-source development practices.
  - Delivered DEMO in Seattle on decentralized collision avoidance systems for flying cars.
  - Managed external collaboration with two technology firms and one university.
  - Implemented an aircraft-to-aircraft intent negotiation protocol.
  - **Languages/libs:** C/C++, XML, UML, boost, gtk+, WxWindows
  - **Tools:** CMake, Debian GNU/Linux, svn, matlab, x-plane
- Dec 2005 – **Simulation Engineer**, *GMV / GIMO (Spanish Navy Research Facility)*, Madrid  
 Sep 2006
- NATO Clearance.
  - Designed and implemented a continuous-time simulator for a NATO project (naval warfare/chaff/missile guidance).
  - Developed a XML dialect to generate C++ code snippets.
  - **Languages/libs:** C++, XML, OSG
  - **Tools:** Debian GNU/Linux, GNU Plot, open office XML, autotool
- Sep 2004 – **Real-time Safety critical Software Engineer**, *Silver Software*  
 Dec 2005 – *EADS - CASA*, Madrid, ES
- Developed military Air Refueling Boom System (guidance/control) for A330 MRTT aircraft.
  - Implemented DO-178 safety protocols and synchronized fault-tolerant subsystems.
  - Main analyst and developer of the 4x redundant control system under CMMI-5, SIL-4 regulations.
  - Managed system requirements and maintained full test coverage.
  - **Languages:** C++, Ada, Spark, UML
  - **Tools:** VxWorks, gnats, doors, bugzilla, CVS, Rational RTRT
- Jun 2004 – **Real-time Software Engineer**, *Silver Software*, Chippenham,  
 Sep 2004 UK
- Westinghouse: Development of a real-time/signaling subsystem for the Westlock Rail system.
  - Worked on IMA (Integrated Modular Avionics) for A380 landing gear.
  - **Languages:** C++
  - **Tools:** Visual C++, MFC, python
- Oct 2003 – **Software Engineer**, *Rastertech*, Madrid  
 June 2004
- Worked on the main product, a workflow tool for engineering blueprints.
  - **Languages:** C++
  - **Tools:** Visual C++, knoppix, AutoCAD, Catia, Pro-Engineer

- May 2003 – **Software Engineer**, *Helgeson Scientific*, Madrid
- Oct 2003 ○ Development of capture and analysis Software on alpha particle detector for nuclear reactor contingencies.
- **Languages:** C++
- **Tools:** Borland C++
- Oct 2000 – **Software Engineer**, *ELCO-Tecnobit*, Madrid
- Apr 2003 ○ Developed bespoke CAD software for Human-Machine Interfaces (HMI) for the Airbus A400M.
- Main developer for embedded avionics on military helicopters (Seaking, Seahawk).
- Implemented geophysical models (WMM, EGM96) and integrated global cartographic systems.
- **Languages:** C++, Java, OpenGL
- **Tools:** Debian GNU/Linux, Netbeans, Visual C++, DirectX
- Oct 1998 – **Web Developer/founder of .com startup**, *IP Iberproject*, Madrid
- Oct 2000 ○ Development of irccrawler.com, e-commerce websites for advertisements on IRC networks.
- Proposed and awarded a project for Telefónica I+D backend systems.
- Developed promotional microsite for Coca-Cola.
- **Languages:** PHP, SQL, ASP, Visual Basic, Excel VBA, perl
- **Tools:** Debian GNU/Linux, Apache, MS SQL Server, Director/flash
- Dec 1997 – **Software developer**, *Solucion PYME*, Madrid
- Oct 1998 ○ Development of business applications in the retail industry.
- Grew and lead the development team.
- **Languages/libs:** Visual Basic, ASP, ActiveX, ODBC, OLAP
- **Tools:** MS Access, MS SQL Server, IIS
- Sep 1996 – **Programmer**, *A.R. Software*, Madrid
- Nov 1996 ○ Developed IBM7525 protocol handler and legacy terminal emulation tools.
- **Languages:** C, x86 Assembly
- **Tools:** Borland C, RS232 interface

## Publications

- 2023 **Plebble: Blockchain, Local Economies, Marketplaces and Social Order**
- [http://plebble.net/plebble\\_white\\_paper.pdf](http://plebble.net/plebble_white_paper.pdf)
- White paper describing Plebble Layer 1 blockchain.
- 2017 **Computing Non-Primitive Recursive Functions Using a Total Turing Language**
- [http://plebble.net/ackermann\\_bitcoin.pdf](http://plebble.net/ackermann_bitcoin.pdf)
- Proof that Bitcoin Script can compute non-primitive recursive functions.

## Demos

2023 **Patient Journey Demo (Plebbles)**

[http://plebble.net/patient\\_journey.pdf](http://plebble.net/patient_journey.pdf)  
Role-based agent systems in healthcare.

2025 **Supply Chain Demo (Plebbles)**

[http://plebble.net/supply\\_chain\\_demo.pdf](http://plebble.net/supply_chain_demo.pdf)  
Blockchain traceability system.

## Source Code

- mm-s <https://github.com/mm-s> – Project sandbox and essays
- Plebbles <https://github.com/root1m3/plebble> – P2P network, privacy wallets, agent orchestration
- ScriptV <https://github.com/scriptnetwork/scriptv> – Script.tv Layer-1 node codebase
- dTool <https://github.com/scriptnetwork/dtool> – DevOps/CI and dev discipline team automation tool.

## Major Open Source Contributions

2018 **Bitcoin ABC**

Contributed extensively to the May 2018 Monolith protocol upgrade by implementing and testing new Bitcoin Script opcodes.

- Implemented arithmetic/bitwise opcodes: OP\_DIV, OP\_MOD, OP\_AND, OP\_OR, OP\_XOR.
- Developed string manipulation opcodes: OP\_CAT, OP\_SPLIT, OP\_NUM2BIN, OP\_BIN2NUM.
- Submitted and reviewed over 20 Differential Revisions and Commits.
- [Link to contributions](#)

## Languages

Spanish Native  
English Fluent

## Other

- 2006 Security Clearance. Previously NATO cleared (GMV/GIMO Naval Research)
- 1997 Served mandatory military service for Spanish Army

## Latest version

Find the latest version of this CV at [https://mm-studios.github.io/about/cv\\_mm.pdf](https://mm-studios.github.io/about/cv_mm.pdf)