

Marcos Tirador



CONTACT INFORMATION

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ResearchGate: [R^G](#)

Google Scholar: [Graduate](#)



SUMMARY

Current Master's student in the M2 Mathematics, Vision, and Learning program at ENS Paris-Saclay. Passionate about mathematics and computer science, with a strong background in research, teaching, and international competitions.

RESEARCH INTERESTS

Over the past five years, my research has focused on factorization theory, a subfield of commutative algebra and algebraic number theory, which explores the phenomenon of non-unique factorizations in integral domains and monoids. I am now increasingly oriented toward the application of mathematics in areas such as machine learning and optimization.

EDUCATION

Bachelor of Science in Computer Science

Sep 2019 – Jan 2024

University of Havana, Havana, Cuba

- Graduated top of the class with honors, outstanding in research and academics.

SCIENTIFIC PUBLICATIONS

- **On the set of molecules of numerical and Puiseux monoids** (with M. Gotti). In *Rings, Monoids and Module Theory*, Springer Proceedings in Mathematics & Statistics, Vol. 382 (2022), 111–125. [doi:10.1007/978-981-16-8422-7_5](https://doi.org/10.1007/978-981-16-8422-7_5)
- **Factorization in additive monoids of evaluation polynomial semirings** (with K. Ajran et al.). *Communications in Algebra*, Vol. 51:10 (2023), 4347–4362. [doi:10.1080/00927872.2023.2208672](https://doi.org/10.1080/00927872.2023.2208672)
- **Subatomicity in Rank-2 Lattice Monoids** (with C. Liu & P. Rodriguez). *Journal of Commutative Algebra*, 16(3):337–352 (2024). [doi:10.1216/jca.2024.16.337](https://doi.org/10.1216/jca.2024.16.337)
- **On the atomicity of power monoids of Puiseux monoids** (with V. Gonzalez et al.). *International Journal of Algebra and Computation*, Vol. 35, No. 02, pp. 167-181 (2025). [doi:10.1142/S0218196724500565](https://doi.org/10.1142/S0218196724500565)

SELECTED AWARDS

- World Finalist, International Collegiate Programming Contest (ICPC), 2024.
- Second most impactful researcher of the graduating year, University of Havana, 2024.
- Bronze Medal, XXV Iberoamerican University Mathematical Olympiad, 2022.
- Bronze Medal, International Mathematics Competition for University Students, 2021.
- Gold Medal, Caribbean Finals of the ICPC, 2021.
- Honorable Mention, International Mathematical Olympiad (IMO), 2017.

WORK EXPERIENCE

Fullstack Developer E&E Technologies LLC	<i>May 2025 – Aug 2025</i>
I worked as a full-stack developer focusing on building and maintaining web applications with React and TypeScript. I contributed across the stack—from designing responsive, user-friendly frontends to implementing efficient backend logic and API integrations.	
Researcher and Instructor Department of Mathematics and Computer Science, University of Havana, Cuba	<i>Jan 2024 – Jul 2025</i>
Taught lectures and practical sections, developed course content, and assessed students. Conducted research in factorization theory within commutative algebra, collaborating on peer-reviewed publications.	
Blockchain Developer & Cryptography Researcher (Intern) Nethermind	<i>Jun 2024 – Sep 2024</i>
Contributed to smart contract development, cryptographic protocol research (including SNARGs), and Ethereum node deployment on the EigenLayer. Worked on protocol efficiency improvements, implementation, and system monitoring.	
Fullstack Developer Divine Solutions LLC	<i>Mar 2024 – Jun 2024</i>
Participated in the development and maintenance of a complex software platform. Worked on API development (.NET), database management (PostgreSQL), third-party integrations, frontend development (React), and DevOps tasks.	

TEACHING EXPERIENCE

- **Instructor**, Data Structures and Algorithms, University of Havana (Feb 2024 – Present).
- **Instructor**, Advanced Data Structures and Algorithms, University of Havana (May 2024 – Sep 2024).
- **Instructor**, Introduction to Programming with Python, University of Havana (Feb 2024 – Jul 2024).
- **Student Assistant**, Data Structures and Algorithms, University of Havana (Feb 2022 – Jan 2024).
- **Math Instructor**, Cuban Teams Training for International Competitions (May 2019 – Aug 2019).

TECHNICAL SKILLS

- **Programming Languages:** Python, C#, JavaScript, TypeScript, C, C++, Haskell, Prolog, R, Solidity (high expertise in Python and C#).
- **AI/ML technologies:** Keras, spaCy, NTLK, scikit-learn, OpenAI APIs, TensorFlow
- **Others:** .NET Core, ASP.NET, Node.js, React, Next.js, SQL

LANGUAGES

- Spanish:** Native Speaker
English: Advanced (Certified by Duolingo English Test)