

# Marcos Tirador




## CONTACT INFORMATION

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*Full Name:* Marcos Manuel Tirador Del Riego

*Email Address:* [marcosmath44@gmail.com](mailto:marcosmath44@gmail.com)

*ResearchGate:* 

*Google Scholar:* 



## SUMMARY

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Instructor in Data Structures and Algorithms and researcher in Commutative Algebra at the University of Havana. Passionate about mathematics and computer science. Currently applying to graduate programs.

## RESEARCH INTERESTS

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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 also have a keen interest in theoretical computer science (particularly in cryptography, complexity theory, and artificial intelligence).

## EDUCATION

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**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

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- **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* (to appear). [doi:10.1142/S0218196724500565](https://doi.org/10.1142/S0218196724500565)

## SELECTED AWARDS

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- 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

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### Researcher and Instructor

*Jan 2024 – Present*

#### Department of Mathematics and Computer Science, University of Havana, Cuba

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)

*Jun 2024 – Sep 2024*

#### Nethermind

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

*Mar 2024 – Jun 2024*

#### Divine Solutions LLC

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

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- **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

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

## LANGUAGES

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**Spanish:** Native Speaker

**English:** Advanced (Certified by Duolingo English Test)