DEVELOPER • RESEARCHER

Antonio Henández-Garduño, Ph.D.

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SUMMARY

As a developer, I am passionate about crafting business solutions using functional programming languages. With over three years of experience in Haskell and JavaScript/TypeScript, my current focus is on developing and deploying smart contracts on the Cardano Blockchain.

Having a background in both software development and mathematics research equips me with a unique capacity for looking at design and engineering problems from a "first principles" point of view.

EXPERIENCE

- GENIUS YIELD – JAN 2024 - JUNE 2024

  Full time Haskell developer and member of the core development team.

- MODULO-P – MAY 2023 - MAY 2024

  - Won second place at the *Zero Knowledge* track of the *Cardano Emurgo Build 2023 Hackathon*.
  - Got funded by *Project Catalyst* Fund 10 for developing a ZKP framework based on Hydra. All milestones completed with final PoA approved on June 2024.

- REITCIRCLES – OCT 2022 - DEC 2023

  Technical consultant and Web3 developer. Assisted in development of project roadmap.

  - Designed and implemented a deflationary minting policy for REIT's token (Aiken).
  - Designed and implemented an updatable *multisig* treasury (Aiken).

- AYLLU ACADEMY – FEB 2022 - JUN 2023

  This is an initiative funded by *Project Catalyst* (Fund 7).

  - Created a *Haskell* online course oriented towards *Plutus* development.
  - Developed smart contracts for the *student-enrollment* and the *learn-to-earn* modules of the platform.

CERTIFICATIONS

- Emurgo Academy

  - PROFESSIONAL DEVELOPER – JUL 2022 - DEC 2022

    Plutus - Smart Contracts Development

    View certificate

- ASSOCIATE DEVELOPER – JAN 2022 - MAY 2022

  Blockchain - Cardano Architecture an Design - Haskell
  View certificate

- IO Global
  - MARLOWE PIONEER PROGRAM (FIRST COHORT) – MAY 2022 - JUL 2022

  - PLUTUS PIONEER PROGRAM (THIRD COHORT) – JAN 2022 - MAR 2022

- Wolfram Research, Inc.
  - WOLFRAM LANGUAGE CERTIFIED INSTRUCTOR - SINCE 2018

SKILLS

- *Programming languages:* Haskell, Javascript, Typescript, Wolfram Language, Python
- *Smart-contract languages:* Plutus, Aiken, Plutarch
- Quantum Computing (languages: Qiskit, Cirq)
- Geometric Methods in Mathematical Physics and Finance (research)
- Teaching at the university level

ACADEMIC EXPERIENCE

- Development of an online course on Quantum Computation – Nov 2023 - present

  In collaboration with Universidad Nacional Autónoma de México (UNAM).
- University Lecturer, Instituto Tecnológico Autónomo de México (ITAM) – Aug 2020 - Jan 2022
  Courses taught: Quantum Computation, Electromagnetism, Radiation and Antennae, Freshman Physics, Analytic and Vector Geometry, Advanced Dynamical Systems.
- Academic Supervisor, Quantum Lab ITAM – Jan 2021 - Dec 2021

  Supervised the activities of *Quantum Lab ITAM* at Instituto Tecnológico Autónomo de México.
- Visiting Professor, Instituto Tecnológico Autónomo de México (ITAM) – Jan 2018 - Aug 2020

  Department of Digital Systems and Department of Mathematics

  Research interests: Geometric methods in celestial mechanics, dynamical systems and control theory; holonomic quantum computation.
- Associate Professor, Universidad Autónoma Metropolitana (UAM-I) – Jan 2009 - May 2017

  Department of Mathematics

  Research interests: Symmetry in Hamiltonian systems, Celestial Mechanics, Vortex Dynamics. *Educational interests:* Foundations of Geometry, Rational Trigonometry, Computer Based Math education.

- University Lecturer, Instituto Tecnológico de Monterrey – 2012 - 2014

  Courses taught: Freshman and Sophomore Calculus
- Research Scientist, IIMAS-UNAM – 2002 - 2007

  Research Interests: Geometric Methods in Mathematical Physics.Academic Credentials
- CALTECH

  Doctor of Philosophy (Ph.D.), Mathematics – 1995 - 2002

  Ph. D. Thesis: *Regularization of the Amended Potential Around a Symmetric Configuration*. Advisor: Jerrold E. Marsden
- Universidad Nacional Autónoma de México

  Bachelor's degree, Physics – 1989 - 1994

  Thesis: *Wave operators in the Scattering Theory in Classical Mechanics*. Advisor: Ricardo A. Weder Zaninovich.

ACADEMIC ACCOMPLISHMENTS

- Eleven research papers published.
- Directed four undergraduate theses (two in Computer Science and two in Physics), and one master's degree thesis (Mathematics).
- Over sixty five presentations and workshops given at academic and programming events.
- Over sixty undergraduate and five graduate courses imparted.
- Sistema Nacional de Investigadores (SNI), Level 1 (2016-2018) – CONACYT
- Excellence Profile Recognition (2015-2018) – PRODEP-SEP

REFERENCES

Available upon request. A list of publications can be consulted here.