Carlos Efrain Quintero Narvaez

UNAM – Mexico City, Mexico
B.S. in Mathematics

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Work Experience

October 2022 - December 2022

Meta Platforms. *Software Engineer.*

October 2021 - June 2022

GeoptData Consulting Services. *Software Engineer.*
Working on OLAP Cubes for corporate databases. Worked with companies such as FEMSA, Cruz Azul and Farmacias del Ahorro.

June 2021 - September 2021

Google. *Software Engineer Intern.*
Summer internship working on the Security Engineering team.

January 2021 - April 2021

Facebook. *Software Engineer Intern.*
Worked on the Facebook Artificial Intelligence Research (FAIR) team.

June 2020 - September 2020

Facebook. *Software Engineer Intern.*
Worked in the Developer Infrastructure (DevInfra) team doing web development with React.js and statistics.

June 2019 - January 2020

FUSE / People & Technology. *Data Science Intern.*
Development of tools that integrate techniques of image and data analysis (such as Machine Learning and Neural Networks) for classification tasks and other actions that provide users with added value on their commercial and operation processes.

November 2018 - June 2019

SICCOA. *Software Engineer Intern.*
Development of automatization solutions for industrial processes in various companies such as PEMEX and FERMACA.

Recent Projects

November 2022

Tapp Finance. (Project Page)
Built during the ETH San Francisco hackathon. Tapp finance is a liquidity routing protocol for NFT AMM supporting multiple EVM chains - Ethereum, Polygon, Optimism, Skale network, and EVMOS. It aggregates information on liquidity pools of NFT AMMs so users can discover the best pools.

August 2022

Heptagon: Decentralized Music Streaming Platform (Project Page)
Built a prototype of a free decentralized music streaming service using the Polygon Blockchain and Lens Protocol during the ETH Mexico hackathon. Won a prize by the Lens Protocol organization.

January 2021

FlexFlow. (flexflow.ai)
Tool for deep learning models, meant to accelerate training using many GPUs for distributed computations with different parallelization strategies. Contributed during my winter internship on Facebook.

Published Work

November 2021 **Algebraic Structures and Proofs of Universality in Quantum Computing**
Quantum computation research as a part of my bachelor's thesis. I reviewed some of the most relevant parts of the literature regarding universal quantum gates and extended a relevant proof to work with *qudits* (a generalized version of usual qubits).

August 2022 **Unity: Accelerating DNN Training Through Joint Optimization of Algebraic Transformations and Parallelization.**
This paper presents Unity, the first system that jointly optimizes algebraic transformations and parallelization in distributed DNN training.

Technical Skills

Python, JavaScript, C++, PyTorch, Web 3.0, Qiskit, Solidity

Awards

September 2017 **XXII Olimpiada Iberoamericana de Física.** Armenia, Colombia. *Bronze Medal.*
Additionally, the **Mexican Physics Society** awarded me with a diploma for my performance.

November 2017 **XXVIII Olimpiada Nacional de Física.** Monterrey, México. *Gold Medal.*

May 2017 **XXII Olimpiada Mexicana de Informática.** Queretaro, México. *Silver Medal.*

November 2016 **XXVII Olimpiada Nacional de Física.** Guanajuato, México. *Silver Medal.*

February 2018 **Concurso de Ciencias ITESM 2018.** Monterrey, México. *4th place in Computation and finalist.*

February 2017 **Concurso de Ciencias ITESM 2017.** Monterrey, México. *5th place in Computation.*

Education

2018 - 2022 **B.S. in Mathematics, Universidad Nacional Autónoma de México**
Graduated with an honorable mention with a thesis entitled "**Algebraic Structures and Proofs of Universality in Quantum Computing.**"

2016 - 2018 **Preparatoria Alfa Fundación.**
High School with full scholarship by Grupo Alfa.