Emmanuel Byrd

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Golang expert with an outstanding track in large-scale, high frequency systems. A Founding Engineer with multiple published scientific contributions and a proven success as leader of technical teams.

Work Experience

Quantitative Developer / Senior Software Engineer | QRT   July 2025 - present

QRT is a global investment manager. Working as a Golang Expert in the system that provisions in-house CPUs and GPUs to the Trading Research team. Reporting to Quantitative Technology Director.

- Event-driven development using Temporal workflows.
- Bare metal machine configurations like OS provisioning and network configurations.

Senior Software Engineer | Adecco, at Google.   May 2024 - July 2025

Designing and developing highly efficient backend microservices in **Golang**. Implementing large scale features for millions of users.

- Engineered a pagination framework, raising the row limit from **150k to 1 million,** and improving reliability.
- Designed a concurrent access system to manage exclusive resource locks, achieving a **10x improvement** in request handling efficiency.
- Implemented caching systems for high-traffic endpoints, reducing latency from seconds to **milliseconds**.

Co-Founder & CTO | Agave Networks.   Dec 2021 - May 2024

Co-designed the business model, understood customer challenges and designed technological solutions for our B2B surplus marketplace to make international transactions convenient.

- **Deployed** the MVP from scratch with **Golang**, Typescript, Python, Terraform, gRPC and GCloud.
- Won a **£49,000 grant** by Innovate UK, and built a Computer Vision feature to analyse scrap metal pictures.

Senior Software Engineer | 8th Light.   Oct 2021 - July 2023

Full-Stack development of greenfield and legacy codebases. Author of technical articles. **Exceeded Expectations**.

- Identified and fixed dangerous bugs in the transaction's **Ledger** of a large **crypto exchange** in **Golang**.
- Improved a cascade caching system, reducing load to Redis in **80%** and improving service rate **7x**.
- **Tech lead** of the UK team for a greenfield Web3+Web2 content streaming platform. Built the cloud infrastructure with **GCloud**, **Terraform** and **Docker**; and the services with NextJS, NestJS, and GraphQL.

Senior Software Engineer | Nexu, Mexico.   Jun 2017 - Aug 2019

Digital financial services for online leasing. Backend developer in Ruby on Rails and frontend in Angular.

- Built an automatic payments parser and consolidator, reducing processing time from **1 day** to **5 minutes**.
- Built a real-time lead prioritisation using a queue system with Action Cable.
- Built an automatic custom PDF generator of legal contracts, reducing the task time from **hours to seconds**.

Skills

Golang | TypeScript | Python | PostgreSQL | PyTorch | Pandas | Terraform | GitHub | CI/CD | Docker | GCloud

Personal Projects

Computing for Finance, Self Studies   **August 2024-present**

Building a highly efficient exchange and trading engine in **Golang**. Exploring financial concepts like futures, options, interest rates, and portfolio optimization, and applying techniques such as PCA, autocorrelation, and Black-Scholes modeling. Strengthening skills in linear algebra, probability, statistics, and calculus, alongside **memory and time efficient programming** in **Golang** and **Python.** Applying **Machine Learning** models to financial data, developing trading bot prototypes in **Python and PyTorch**.

ETH Mexico, Mexico City   **2022**

Participated in ETHMexico building [Mixdown](#) on top of the Lens Protocol (Web3/Blockchain). Our dApp won two **first prizes** in the hackathon: best audio dApp for Lens, and best use of IPFS/Filecoin, worth a total prize of **$7000** USD. Used Vite, RainbowKit, Tailwind, Vercel, IPFS and crunker.

[Ruby Gem: szymanskis_mutex](#), **+55,000** downloads   [Active Record contributor (Ruby on Rails)](#)

[ML repository](#): **Deep QLearning**, CV and other gists.   Real-time [crypto arbitrage bot](#) in **Golang**.

Education

Master of Science in Computer Science | University Tecnologico de Monterrey.   **2021**

Computer Vision and Pattern Recognition Workshop   2021

Published the [extended abstract](#) "*ActivityNet and OSCAR: an Image Captioning model can effectively learn a Video Captioning dataset*". Performed SotA research, experiment design, data preprocessing, augmentation, training, and evaluation. Written in Python with NLP, Computer Vision, **BERT** and **PyTorch**.

19th Mexican International Conference of Artificial Intelligence   2020

Published the [conference paper](#) "*Exploitation of Deaths Registry in Mexico to Estimate the Total Deaths by Influenza virus: a Preparation to Estimate the Advancement of COVID-19*", using data cleaning, preprocessing and linear regression for time series forecast. Presented in an event with over **900** total registered attendees. Published by Springer in *Lecture Notes in Computer Science*. Written in Python with **Pandas**, **Numpy** and **Scikit-learn**. [Available on Github](#).

Bachelor of Science in Computer Science and Engineering | University Tecnologico de Monterrey.   **2017**

Real-Time Cloth Simulation   2017

Coded in **C++** using a Mass-Spring System and Verlet integration. Included wind, gravity, collision, camera movements and Phong Illumination. **Parallel GPU** computing using transform feedback. Selected the [gold standard project](#) of the course for two consecutive years.

Int64 Compiler   2017

Coded a compiler with Lexical, Syntactic and Semantic Analysis that compiled to Assembly. Included a function stack, hoisting, variables scope, flow controls and string representations in 64-bit integers. Written in **C#**. [Available in GitHub](#).

12th National Colloquium of Codes Cryptography and Related Areas, Mexico   2017

Researched and [presented the conference](#) "*The Importance of Pseudo-Random Numbers in the Generation of Cryptographic Keys*" to an audience of **50** people. Mentioning the history and vulnerability of the DUAL_EC_PRNG pseudo-random number generation algorithm.

LVIII National Congress of Physics, Mexico.   2015

Published the poster *"Generation of a GUI in MATLAB to study heat conduction in a one-dimensional bar"*. The work illustrates heat conduction simulation in a one-dimensional bar in **MATLAB**, using **finite differences**, using the methods of Explicit Euler, Implicit Euler and Runge-Kutta; and the boundary conditions needed for the simulation to converge [register number 0860, poster 4MF33].