Caleb Curran-Velasco

linkedin.com/in/caleb-curran-velasco | curranvelasco.com | calebcurran.velasco@gmail.com | 719-644-0767

Education

Colorado School of Mines, Golden, CO - *B.S. Computer Science* — **August 2024**

- **Inaugural member of the Presidential Grewcock Scholarship Program** — **GPA: 3.58**
- **Areas of Interest:** Machine Learning | Computer Vision | Software Engineering | Data Science — **Dean's List**

Experience

Grewcock Presidential Scholars Leadership Program - *Colorado School of Mines* — **August 2020 - Present**

Sponsor: Bruce Grewcock | former CEO of Kiewit Corporation

- One of 10 inaugural recipients of a full tuition and fees scholarship for outstanding leaders in STEM
- Growing and developing leadership, communication, and other professional skills through weekly meetings with CEOs, advisors, and mentors

Vine Laboratories, CO - *Engineering Technician* — **May 2022 - August 2022**

- Performed materials testing both in the field and in the lab
- Ensured safety by testing the durability of the materials used in major projects such as the Denver International Airport Rehabilitation and Expansion project
- Collaborated with contractors, employing effective communication skills to execute quality control measures

Firm Foundations LLC, Colorado Springs, CO - *Owner and Manager* — **January 2015 - September 2019**

- Started a vending machine business and learned about accounting, inventory, and customer service

Skills

Software - Python | C++ | Java | OpenCV | Linux | Bash Scripting | R-Studio | LaTeX | HTML | Azure | CSS | Matlab

Bilingual / Soft - Fluent in both English and Spanish | Adaptable | Self-motivated | Positive | Problem Solving | Curious

Projects / Research - **Visit curranvelasco.com or github.com/CalebCurranVelasco for more information**

Breast Cancer Prediction Web Application

- Developed a machine learning model using linear regression to predict breast mass benignity based on cell nuclei measurements to assist medical professionals in diagnosing breast cancer
- Created a user-friendly interface for real-time model interaction and data visualization by allowing users to modify cell nuclei measurements

Facial Recognition

- Developed a real-time facial recognition system using Python and OpenCV, integrated with a Raspberry Pi and webcam, allowing for accurate detection and identification of individuals
- Implemented Haar Cascade-based face detection to locate faces in video frames and employed a Local Binary Pattern Histogram (LBPH) face recognizer to recognize and identify individuals with high precision

Undergraduate Research Assistant - **Research Professor: Mike McGuirk | cmmcguirk@mines.edu**

- Working as a Research Assistant for the McGuirk Group developing and testing a synthetic alternative to plastic recycling
- Performing catalysis and molecular dynamics research

GPT Fun Web Application

- Leverages large language models like gpt-3.5 and the OpenAI API for semantic search and question answering
- Includes symptom based medical diagnosis predictions and allows users to extract insights from various sources of information such as PDFs, YouTube videos, and URLs with a user friendly interface

Reinforcement Learning for Autonomous Car Racing

- Implemented a deep reinforcement learning project using PyTorch and the Stable Baselines3 library to train an agent for autonomous car racing
- Utilized convolutional neural networks to process environment observations and make control decisions.

Awards / Activities

Quebit by Quebit Winter School with Microsoft Azure Quantum, 2023

- Learned about Quantum Computing, Quantum mechanics, and coded in Q#

Volunteering

- Assisted local farmers in Ecuador to cultivate their crops and gave homeless people in Ecuador food and shelter

Innov8x Flash Challenge

- Pitch for using AR and VR with MRI imaging to create a 3D model (2nd) and modular housing innovations (1st)

Mines Club Volleyball Team, 2021

Society of Hispanic Professional Engineers (SHPE) - *Executive Board Member and National Member*