

# SEBASTIAN COATES

Graduating May 2020

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🌐 sebastiancoat.es

## WORK EXPERIENCE

### Blockchain Intern

#### Vertex Pharmaceuticals

📅 06/2018 - 08/2018 📍 Boston, MA

- Developed full-stack decentralized web application for clinical trial processes, using Ethereum, Solidity, Nodejs, and MySQL.
- Prepared 4-hour presentation for company CIO and other department representatives to explain Blockchain technology and various possible applications in the pharmaceutical industry.
- Applied penetration testing methodologies to ensure security in smart contracts and web APIs.

### Software Engineering Intern

#### Bank of America

📅 06/2017 - 08/2017 📍 Charlotte, NC

- Used machine learning (reinforcement learning and super resolution) to improve OCR. Worked primarily with Python and TensorFlow.
- Developed a secure contract for loans using Solidity and the Ethereum Blockchain.
- Participated in Agile training.

## PROJECTS

### Music Information Retrieval

🌐 <https://github.com/sebasscoates/graphmir>

A graph-based approach to music information retrieval.

- Enabled 98% accuracy in binary genre classification and 92% accuracy in binary artist classification (same genre).
- Wrote formal paper analyzing the full project, included in GitHub.

### C Language Compiler

Compiles C source code to 'Universal Machine' CPU instructions.

- Using 14 CPU instructions, supports following C features:
- Nested loops/conditionals, basic function calls, variables, dynamic memory allocation, IO, and math & bitwise operations,

### Graph Isomorphic Encryption

🌐 <https://github.com/sebasscoates/isomorph>

- Applied theory of graph isomorphism to develop new method of data encryption with brute-force time complexity of  $O(n!)$ .
- Used C++ to produce fast encryption / decryption times and effectively manage memory.

## LANGUAGES

### Python

Proficient

### C

Proficient

### Solidity

Proficient

### Javascript

Knowledgeable

### Go

Knowledgeable

## RELEVANT COURSES

Machine Learning

Data Structures

Machine Structure & Assembly

Web

Algorithms

Graph Algorithms

Linear Algebra

Differential Equations

Calculus

## EDUCATION

B.S. Computer Science,  
B.S. Applied Math  
Tufts University School of Engineering

GPA

3.96 / 4.00

📅 09/2016 - 05/2020