

Hamza Motiwalla

hamza.motiwalla@colorado.edu

www.linkedin.com/in/hamza-motiwalla/

Boulder, CO

Mobile: (720) 998 7818

RESEARCH INTERESTS AND GOALS

I'm passionate about Operating Systems, Computer Networks and Ethical Hacking. I aim to pursue research at the intersection of Network Security and Virtualization. I'm good at breaking stuff, but not great at putting it back together. I have an aptitude for quickly figuring out new technologies by aggressive trial and error.

EDUCATION

- **University of Colorado Boulder**

Boulder, CO

Masters in Computer Science (Research-Based)

Aug 2019 – May 2021

Relevant Courses: Security and Ethical Hacking, Advanced Operating Systems

- **College of Engineering, Pune**

Pune, India

Bachelor of Technology (with Honors), Computer Engineering

July, 2015 – May, 2019

GPA: 8.95/10.0; Top 10 of the Class

Relevant Courses: Cryptography and Network Security, Operating Systems, Microprocessors

PROGRAMMING SKILLS

C, Java, Python, Assembly x86, bash, GCP, LaTeX, Git, Unix, Linux(Kernel Programming), Docker, Kubernetes, SQL, Hadoop, Spark, bufferoverflow attacks, tensorflow.

EXPERIENCE

- **Course Manager for CSCI 5253 Data Centre Scale Computing**

Boulder, CO

University of Colorado Boulder

Fall 2019

Assisting Prof Dirk Grunwald with developing lab assignments on Hadoop MapReduce, Google Cloud Platform and Kubernetes. I'm also responsible for grading assignments and evaluating exams.

- **Technology Analyst at Credit Suisse India**

Pune, India

Internship, Swiss Universal Bank IT Division

Summer 2018

Worked on **Resume Analysis using NLP techniques**. We extracted important features from the given documents using nltk and created a classification model based on TF-IDF vectorization and Cosine Similarity Test to rank each candidate with respect to the job description.

PROJECTS

- **Serverless Computing on Edge devices**

OpenFaaS, Bash, GoLang

Ongoing research project for CSCI 5573 Advanced Operating Systems

2019

Objective: To build a serverless platform using OpenFaaS tailored for resource constrained edge environments in order to provide high scalability and real-time communication. Also identify the security vulnerabilities of deploying a serverless architecture on the edge.

- **Compression Algorithm Library**

ANSI C

<https://github.com/hamzam15comp/Compression-Library>

2016

Objective: To provide the user with multiple compression algorithms for efficient data management.

- **Huffman Encoding:** Huffman coding is a lossless data compression algorithm. The algorithm assigns variable-length codes to input characters, based on the frequencies of characters.
- **LZ77:** LZ77 is a lossless data compression algorithm published by Abraham Lempel and Jacob Ziv in 1977. LZ77 is theoretically dictionary coders which maintains a sliding window during compression.

- Encryption Algorithm based on Feistel Structure** Python
2018
<https://github.com/hamzam15comp/FeistelFinal>
 Designed our own Encryption Algorithm based on Feistel structure.
 Key-Size: 16byte; Block size: 8bytes; Rounds: 16.
- Game-Server Protocol Connection** Python
2017
<https://github.com/hamzam15comp/Game-Server>
 Established a simple Server-Client TCP/IP connection over LAN using the Twisted Framework.
 The server listens for at least two clients to initiate a game of Tic-Tac-Toe.
- Non-Performing Asset Prediction for financial institutions** Bash, Python, Tensorflow
Jan 2019 - May 2019
BTech Technical Report
 Designed a predictive machine learning model which will factor in past transaction history, financial statements and other background information of the borrower. Collaborated with two other students and established myself as a team leader.

RELEVANT COURSEWORK

- Systems and Networking:** Security and Ethical Hacking(CSCI 5413), Cryptography and Network Security, Operating Systems, Advanced Operating Systems(CSCI 5573) Microprocessor Techniques, Advanced Microprocessors, Computer Organization, Computer Networks, Advanced Computer Networks, Multi-core Technologies, Parallel Computing Architecture. System Administration
- Theory:** Data Structures, Advanced Data Structures, Algorithms and Complexity, Probability and Statistics for Computing, Theory of Computation.

EXTRACURRICULAR ACTIVITIES

- Rowing and Kayaking:** I was awarded the Best Outgoing Rower Trophy 2019 at the 91st annual COEP Regatta. I'm a Gold Medalist rower and kayaker who has represented the COEP Boat Club at multiple state/district level competitions since 2015.
- Water Pollution Activist** As a JalMaitri Volunteer for COEP Boat Club I've participated in and organized multiple River Cleaning Campaigns and spread awareness about water conservation and water pollution throughout the years. I was awarded a Certificate of Acknowledgement for International Coastal Cleanup by the Indian Maritime Foundation.