KRISHNA SAI CHEMUDUPATI

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EDUCATION

M.S. Computer Science *May 2022*

University of Colorado | Boulder, CO **GPA – 4.0/4.0**

- Fall 2020 Coursework: CSCI 5253 – Datacenter Scale Computing
- Spring 2021 Coursework: CSCI 5832 – Natural Language Processing, CSCI 5722 – Computer Vision

B.S. Computer Science (ABET) (Statistics minor and Big Data Concentration) *May 2020*

University of Wyoming (UW) | Laramie, WY **GPA - 3.96/4.0**

- Coursework: Data Mining, Introduction to Artificial Intelligence, Linux Programming, Machine Learning, Database Systems, Data Structures and Algorithms

SKILLS

- Programming Languages/Libraries: Python, C, C++, Java, SQL, R, PySpark, Solidity
- Deep Learning Libraries/Frameworks: PyTorch, TensorFlow, OpenCV
- Development Environment/Tools: Git, Weka, Android Studio, Google Cloud Platform, Docker, Kubernetes

WORK EXPERIENCE

HPC Student Assistant II *Dec 2020 – Present*

National Center for Atmospheric Research | Boulder, CO *Python, GPU CUDA programming*

- Port and optimize parallel algorithms, including message passing, data transfers, and memory management.
- Validate and measure the performance of ported code.
- Document and contribute to presentations, scientific papers, and conduct workshops for atmospheric scientists.

Course Manager – CSCI 1200: The Art of Computational Thinking *Aug 2020 – Dec 2020*

University of Colorado, Boulder | Boulder, CO *Python, Communication and Leadership skills*

- Provided undergraduate students with one-on-one tutoring on Python programming concepts during office hours
- Assisted students and managed course content on online Learning Management Platforms such as *Canvas* and *Piazza*
- Graded exams and weekly assignments in the course

Undergraduate Research Intern *May 2019-August 2019*

National Center for Atmospheric Research | Boulder, CO *NumPy, Matplotlib, Pandas, NetCDF, Data Visualization*

- Built an interactive tool using *Matplotlib* and *Pandas* to output in situ atmospheric measurements at a point on a radar image
- Programmed *Python* scripts to automate the creation and saving of plots required for analysis
- Extracted weather features from radar imagery using *NetCDF*, *Pandas*, and *Numpy* libraries
- Presented a poster to fellow interns and stakeholders at the end of the summer in the Student Research Poster Session

Computer Science and Math Tutor *Oct 2017-May 2019*

STEP Tutoring Center, UW | Laramie, WY *C++, Java, Communication and Leadership skills*

- Tutored several hundred students and led discussions on Object-Oriented programming concepts of C++ and Java
- Debugged a considerable number of programming assignments
- Tutored students on concepts of multiple Math courses ranging from Trigonometry, College Algebra to Multi-Variable Calculus and Linear Algebra

PROJECTS

OCR Application on the Cloud *Flask, Tesseract OCR, Docker, Kubernetes, Redis, RabbitMQ, Google Cloud Store*

- Created a Flask webserver that
  - Accepts Rest API requests,
  - Communicates with the worker nodes running Tesseract using RabbitMQ,
  - Stores encrypted login information, and document information on a Redis node, and
  - Stores the document in Google Cloud Storage buckets.
- Containerized the different components of the application and deployed it on a Kubernetes cluster on the cloud.

OpenAI Lunar Lander v2 *Python, NumPy, TensorFlow*

- Programmed a Q-learning Deep Reinforcement Learning agent that lands a rover perfectly after 1000 episodes of gameplay while consistently achieving rewards of over 200.

Deepfake Detection Challenge on Kaggle *Python, Pandas, NumPy, TensorFlow, PyTorch, OpenCV*

- Created a discriminator network to distinguish between Deepfakes and real videos with 75% accuracy

Optimizing Animal Surveillance Storage using Object Identification *Python, Pandas, NumPy, MXNet, OpenCV*

- Identifies the times when the animal is in frame to split the video and reduce the amount of surveillance footage stored

LIFE – Decentralized Organ Donation Platform *Solidity, Blockchain, JavaScript*

- Developed a Smart Contract on the Ethereum Blockchain to keep track of payments and an immutable list of donors, receivers, and hospitals registered on the platform
- Received the first prize out of nearly 50 teams in the ConsenSys India Blockchain Hackathon with a cash prize of 100,000 INR

Exoplanets Database Website *Python, MySQLdb, Java, JDBC, MySQL, SQL*

- Developed schema and generated report for the exoplanet database, and established connection to the frontend to submit queries

RESEARCH EXPERIENCE

Graduate Research Project *Nov 2020 – Present*

HIRO Lab, CU Boulder | Boulder, CO *Python, PyBullet*

- Performed a literature survey in the field of *Sim-to-Real Transfer of Deep Reinforcement Learning models* to identify the research direction to pursue
- Simulated objects and the robot using *PyBullet* robotics simulator

Undergraduate Research Assistant *Dec 2018-May 2020*

Mallet Lab, UW | Laramie, WY *Python, NumPy, Matplotlib, Pandas, Scikit-learn, ARFF*

- Explored the characteristics of cases where Algorithms Selection systems (ML models that select the optimal algorithm to solve a given problem) perform poorly to improve their performance in practice
- Designed statistical experiments (Feature selection using Random Forests, Random sampling) to identify reasons for poor performance (unimportant features, many dependent features)
- Written Linux bash scripts to parallelize and run hundreds of jobs on the TETON High-Performance Computing cluster

AWARDS AND SCHOLARSHIPS

- Computer Science Faculty Honoring Scholarship | 2017-2020, UW *Laramie, WY*
- Honors Program Scholarship | 2017, UW *Laramie, WY*
- Tau-Beta-Pi Freshman of the Year Award | 2016, UW *Laramie, WY*
- Rocky Mountain Scholarship | 2016-2020, UW *Laramie, WY*
- President's List and Dean's List | 2016-2020, UW *Laramie, WY*