Theodore Avery

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Skills

- C | C++ | Java | JavaScript | TypeScript | Python | Pytorch | SQL | Node | React | Redux | jQuery | NoSQL | Git |Cloud Computing | XUnit |
- Jest | Agile Development | Unit Testing | HTML | CSS | Unity | Distributed Systems | Frontend | Backend | Full-Stack

Projects

AI-Assisted Design of Genetic Circuits | repo

- Developed a predictive model to evaluate a genetically encoded toggle switch, enhancing the understanding of protein interactions.
- Collaborated with a PhD Biology student and a CBE professor to simulate the fluorescence signaling of a genetic toggle switch.
- Utilized advanced machine learning techniques to predict the most effective DNA strand variant combinations for a robust toggle switch.
- Successfully managed progressive data complexity, handling files with increasing numbers of gene variants and experimental noise.
- Achieved a significant prediction breakthrough with a neural network model, obtaining a mean squared error (MSE) of 0.023.
- Facilitated user accessibility by creating an intuitive' notebook, enabling non-expert application of the model

Full Stack Software Engineer Course | repo

- Engaged in team-based development of a large-scale web development project, adhering to Agile methodologies and Scrum processes.
- Mastered software engineering principles including clean code practices, configuration management, continuous integration, and test-driven development.
- Contributed to an existing codebase by adding features and enhancements, simulating real-world software development scenarios.
- Demonstrated competency in project management and teamwork, preparing for collaborative environments in industry, research, and open-source community.

Neural Net Classification of Images | repo

- Developed a NeuralNetworkClassifier by extending a base NeuralNetwork class to classify hand-drawn digits accurately.
- Implemented and refined a custom NumPy neural network class, conducting a series of tests to optimize performance on the MNIST dataset for hand-drawn image recognition.
- Created a function for generating a confusion matrix, enhancing the evaluation of the neural network's classification accuracy across different digit categories.
- Utilized matplotlib for visualizing model performance and aiding in the optimization process, leading to more informed adjustments to the neural network parameters.

File Censorship | repo

- Enhanced proficiency in C++ by creating a program that dynamically censors specified words from a file or standard input, demonstrating advanced control of data streams.
- Practiced software compilation and build processes using CMake and Makefile, enhancing the ability to manage and automate the build process of C++ applications.
- Fine-tuned debugging and problem-solving skills within the C++ development environment, achieving robust, error-free code through meticulous testing and revision.

Education

Bachelor of Science — **Colorado State University** — *Fort Collins, CO* — **08/2019 -05/2023**

- Major in Computer Science, Minor in Chemistry

Experience

Organic Chemistry || Tutor — **Colorado State University** — **08/2022 - 05/2023**

- Helped undergraduate organic chemistry II students by leading workshops to help them understand course content and problem sets.
- Hosted office hours for students to come for personalized lessons and specific questions to help them succeed.

Grand Canyon River Guide — **Hatch River Expeditions** — **06/2015 - 08/2022**

- Led and facilitated week-long excursions for groups of 30 people, navigating the Colorado River in the Grand Canyon backcountry.
- Took on diverse responsibilities, including driving 30-foot motorboats, delivering interpretive presentations, providing orientations, cooking meals, guiding hikes, and offering engaging entertainment throughout the journey.