Scott Caputo

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scottvcaputo.github.io/Portfolio/ github.com/scottvcaputo

Educational experience utilizing various data structures and algorithms in a variety of machine learning applications exploring relevant real-world problems throughout science, engineering, and technology. Strengths include strong coding and programming skills, working independently and with teams, developing solutions to complex problems in Python and Javascript.

EDUCATION

Columbia University New York, NY
MS in Chemical Engineering, Concentration in Data & Computational Science Expected Dec 2021

Florida State University Tallahassee, FL
BS in Biochemistry and Mathematics Aug 2019

PROFESSIONAL EXPERIENCE

Regenerative Processing Plant, *Tampa, FL* Jan 2020 – Jun 2020

- Conducted research as lead lab biochemist, producing FDA approved engineered biologics. Developed and optimized procedures handling Collagen 1 and 3 extraction from placentas and umbilical cords
- Carried out various biochemical processes, including protein extraction, filtration, and purification, while working under sterile conditions. Resulting product aided in production and assembly of Regener-eyes® eye drops

Florida State University, Research Laboratory of Dr. Igor Alabugin Jan 2018 – May 2018
Undergraduate Research Assistant*, Department of Chemistry and Biochemistry*

- Synthesized unique molecules and worked to more efficiently recreate existing molecules
- Specialized in synthesizing molecules possessing cyclic nature and common nitrogen groups
- Gained experience examining and presenting complex scientific literature to research teams

Florida State University, Research Laboratory of Dr. Hong Li Aug 2016 – Dec 2017
Undergraduate Research Assistant*, Department of Chemistry and Biochemistry*

- Conducted research on protein expression and analysis in bacterial and plant cells focused on CRISPR research
- Focused primarily on applications of biochemistry and molecular biophysics to better understand structural mechanisms of molecular assemblies taking place throughout gene expression and regulation processes

PROJECTS

Machine Learning and Data Science, Independent:
Implemented multiple deep learning algorithms to develop a model to analyze and forecast stock volatility and value using collected data. Built deep-Q RL neural networks using Tensorflow frameworks in Python to train models to successfully complete OpenGym 'Mountain Car' Environment. Implemented transfer-learning in order to personalize and further develop pre-trained models. Automated multi-step tasks using Python including Git repository initialization.

Software Engineering and Development, Independent:
Wrote algorithm-visualization programs using Python and React.js, exploring heavily used sorting and pathfinder algorithms. Developed multiple functioning web and mobile applications utilizing React.js, Javascript, React-Native, HTML, CSS, Sass, Bootstrap, Node.js, MongoDB, and Express. Highlights include online portfolio, account-based blog website, and a Unity-based arcade style app written in C# employing custom art made in Procreate.

Additional Projects: Constructed multiple functioning PCs

TECHNICAL SKILLS

Technical: Programming (Python, Javascript, React, React Native), Tensorflow, Keras, Pytorch, Machine Learning, Deep Learning, AWS, Bootstrap, jQuery, Node.js, Express, MongoDB, HTML5, CSS (Scss), Octave, Matlab, Excel, Unity

Laboratory: Chromatography (column, Ion exchange, HPLC, GC, GCMS), Spectroscopy (flame, absorbance, Raman, IR, FTIR, UV-Vis), Nuclear Magnetic Resonance (NMR) spectrum, Electron Microscopy, Controlled protein expression and extraction, Centrifugation, Compound isolation, filtration, Gel Electrophoresis, Polymerase Chain Reaction, data processing and visualization

Specializations: Deep Learning, Algorithms, Full-Stack Web Development with React, Computer Science and Programming

Certifications and Coursework: Neural Networks and Deep Learning, Improving Deep Neural Networks, Regularization and Optimization, Structuring Machine Learning Projects, Convolutional Neural Networks, Sequence Models, Python, JavaScript, HTML and CSS, Mathematics for Computer Science, Front-End Web UI Frameworks and Tools: Bootstrap 4, Front-End Web Development with React, Multiplatform Mobile App Development with React Native, Server-side Development with NodeJS, Express, and MongoDB, Divide and Conquer, Sorting and Searching, and Randomized Algorithms, Graph Search, Shortest Paths, and Data Structures, Greedy Algorithms, Minimum Spanning Trees, and Dynamic Programming