


Hussein FAARA

Researcher | Developer | Bioinformatician

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Towards exploring the intersection between code and the life sciences, I'm a molecular biology research assistant with an interest in building computational models to simulate biological processes. Through my interests, I've garnered experience in developing novel cross-platform native programs and apps for Windows, macOS, Android, and iOS. I have an advanced command of computer architecture, data structures, and algorithms, and I'm an effective team player, problem solver, and collaborator with a proven record of optimizing productivity within the development process.

COMPETENCIES

Programming	Python, Java, JavaScript, HTML5, CSS, SaSS
Frameworks	Electron.js, Django, Ruby on Rails, Xamarin, Node.js
Tools	Git/ Github, LogRhythm, Gaussian, Maestro
TypeSetting	LaTeX, Markdown
Shell	Bash, PowerShell

EXPERIENCE



September 2018 Present	HPC Support, POMONA COLLEGE, Claremont CA <ul style="list-style-type: none">➤ Train a machine learning model to provide useful classification from terabytes of data➤ Use the genism python library to generate word vectors models of text data➤ Optimize machine learning algorithm to generate useful classification on CPUs within short periods of time➤ Optimize algorithm for better training time on GPUs➤ Oversaw computational chemistry software upgrades on chemistry department computer network <div>Python Git/ Github R Linux VM</div>
October 2018 Present	Information Security Analyst, POMONA COLLEGE, Claremont CA <ul style="list-style-type: none">➤ Anticipate security alerts, incidents and disasters and reduce their likelihood➤ Manage network, intrusion detection and prevention systems➤ Analyze security breaches to determine their root cause➤ Implement and Maintain Security Frameworks for Existing and New Systems➤ Maintain Security Records of Incident Response Activities➤ Develop and maintain scripts for analyzing vulnerabilities and threats <div>LogRhythm Tenable/ Nessus Markdown Git/ Github LucidChart</div>
September 2018 December 2018	Genomics Research Assistant, ANDRE O. CAVALCANTI LAB, Claremont CA <ul style="list-style-type: none">➤ Predicted the occurrence of a riboflavin and ribityl lumazine synthase fusion gene in the <i>S. rosetta</i> and <i>M. brevicollis</i> genomes using a proprietary software, GeneDefuser, created by the Andre Cavalcanti Lab at Pomona College.➤ Performed BLAST searches against the non-redundant database of proteins at GenBank. using the full-length fusion proteins to verify the accuracy of the fusion gene prediction.➤ Used the <i>S. rosetta</i> and <i>M. brevicollis</i> riboflavin and ribityl lumazine synthase protein sequence to search for putative orthologs in all Choanoflagellate genomes.➤ Built phylogenetic trees using conserved domains of the riboflavin synthase and ribityl lumazine synthase domains of genes from a variety of species. <div>GeneDeFuser BLAST SeaView FigTree</div>
September 2018 December 2018	Accelerated Chemistry T.A, POMONA COLLEGE CHEMISTRY DEPARTMENT, Claremont CA <ul style="list-style-type: none">➤ Worked with students one-on-one to learn about problems they are having with the course material and to assist them.➤ Provided extra assistance to students with special needs as requested➤ Worked closely with the lead teacher to identify issues students are having and to develop appropriate solutions➤ Graded weekly assignments➤ Related effectively to students of diverse cultural backgrounds and tailored teaching methods to suit individual needs. <div>MS. Excel</div>

May 2018 September 2018	Computational Chemistry Research Assistant, DANIEL J. O'LEARY LAB, Claremont CA <ul style="list-style-type: none"> Generated crystal structures of molecular energy conformers using the Merck Molecular Force Field Ensured the predicted molecular structures were validated against experimental crystallographic data from the Cambridge Crystallographic database. Performed geometry optimization (energy minimizations) for the generated structural models of energy conformers using the Hartree-Fock and Density Functional Theory quantum mechanical modelling methods. Performed conformational analysis of computationally deuterated energy conformers by analyzing relative populations of energy conformers at low temperatures using thermodynamic data from their optimized energy structures. Used Potential Energy Scans to analyze the rotational energies of molecular structures and calculated their rotational barriers. Predicted reaction pathways and molecular interactions by calculating transitional state energies. <div> Gaussian Maestro Cambridge Crystallography Database PyMOL </div>
February 2018 May 2018	Organic Synthesis Research Assistant, DANIEL J. O'LEARY LAB, Claremont CA <ul style="list-style-type: none"> Synthesized bromine aspirin derivatives from synthesized salicylic acid raw materials. Implemented changes in synthetic methods to simplify production of compounds. Wrote and revised standard procedures for various synthesis projects. Used LC/MS and NMR for characterization of organic compounds Ensured quality control standards by routinely cleaning and maintaining laboratory instruments and equipment.



EDUCATION

2021	Pomona College, Claremont CA Bachelors in Molecular Biology and Computer Science
2015	University Practice Senior High, Cape Coast, Ghana High School Diploma in General Science

PROJECTS

BITCAP  github.com/https://github.com/hfaara18/btc-app A multi-platform program that notifies users if the current bitcoin value reaches the desired price in real time. <div> JavaScript Electron Node.js React.js HTML5 CSS </div>	2018
POPGEN  github.com/https://github.com/hfaara18/popgen A simple python program that generates the relative populations of different conformers of the same molecule at a specified structure using thermodynamic data <div> Python Gaussian(freqchk) </div>	2018

REFERENCES

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