Hussein **Faara**

Researcher | Developer | Bioinformatician

linkedin.com/in/hussein-faara github.com/hfaara18
+1 909 288 3333 faarahussein@gmail.com
170 East 6th, Claremont, CA 91711

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

- 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

Python | Git/ Github | R | Linux | VM

October 2018 – Present

Information Security Analyst, Pomona College, Claremont CA

- 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

LogRhythm | Tenable/ Nessus | MarkDown | Git/ Github | LucidChart

September 2018 – December 2018

Genomics Research Assistant, Andre O. Cavalcanti Lab, Claremont CA

- Predicted the occurrence of a riboflavin and ribityl lumazine synthase fusion gene in the S. rosetta and M. brevicollis 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 S. rosetta and M. brevicollis 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.

GeneDeFuser | BLAST | SeaView | FigTree

September 2018 – December 2018

Accelerated Chemistry T.A, Pomona College Chemistry Department, Claremont CA

- 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.

MS. Excel

May 2018
September 2018

Computational Chemistry Research Assistant, Daniel J. O'Leary Lab, Claremont CA

- 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.

Gaussian | Maestro | Cambridge Crystallography Database | PyMOL

February 2018
May 2018

Organic Synthesis Research Assistant, Daniel J. O'Leary Lab, Claremont CA

- 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 2018
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.

JavaScript | Electron | Node.js | React.js | HTML5 | CSS

PopGen 2018
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

Python | Gaussian(freqchk)

References

Daniel J. O'Leary
Carnegie Professor of Chemistry , Pomona College
@ doleary@pomona.edu
+1 909 450 1861