Ashley D'Souza

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Education

Rice University 2017 - present
Houston, TX
- Computer Science, graduating May 2021, GPA: 3.21

Westwood High School 2013 - 2017
Austin, TX
- GPA: 4.0/4.0 (5.58/5.0 weighted), National Merit Scholar, Graduated May 2017

Conference Presentations

PyoFuel: Using Python and Pathway Tools to engineer synthetic biofuel *Sole Author* more Dec 2016
Colorado
- Int'l. Soc. for Computational Biology / 2016 Rocky Mountain Bioinformatics Conference (poster session)

Projects

Lentil - A Musician's Feedback Service *Independent Project* repo demo 2018 - present
- Design and implement a web-based musician feedback service (ReasonML, React, GraphQL, Postgres)
- Musicians submit recordings of performances and receive pointed feedback from others

Physics Sunset *Independent Project* repo demo 2017
- Design and implement a browser-based interactive graphical simulation of a physics problem (ReasonML)

Disease Transmission Analysis 2018
- Design and implement a rooted-directed minimal spanning tree algorithm (Python)
- Analyze genetic + epidemiological data from 2011 disease outbreak to infer the disease transmission tree

DNA Sequence Alignment 2018
- Design and implement dynamic programming solutions to DNA sequence alignment problems (Python)
- Align human and fruit-fly protein sequences to identify the PAX domain within the "eyeless" gene

Phylogenetic (Evolutionary) Trees 2018
- Infer evolutionary tree, given DNA sequences for leaf taxa and plausible mutations (Python)

Hidden Markov Models and Part-of-Speech Tagging 2018
- Implement statistical learning of HMM using training corpus of pre-tagged sentences (Python)
- Implement Viterbi algorithm to assign part-of-speech tags to new sentences using trained HMM

Chef Arduino *Independent Project* repo 2010 - 2011
- Conceive, design, build, and program an Arduino-based robot to test properties of food samples

Software Development Skills

Programming Languages & Frameworks 2013 - present
- Proficient: Python, Java, ReasonML/OCaml, React
- Basic: C, Racket, Pyret, Elm, Html, Numpy, Hasura's Postgres + GraphQL

Software Design 2013 - present
- Systematic Program Design - Designing Data & Functions, EdX course based on HtDP2
- Functional programming with types (ReasonML, Java 8+, Python 3.5+)

Software Testing 2017 - present
- Test-driven development, unit & property-based tests, Python: Pytest, Java: JUnit 5 & QuickTheories

Work Experience

UT Austin, College of Natural Sciences, Vertebrate Interactome Lab *Summer Research Intern* 2016
Austin, TX
- DNA extraction, splicing, & recombineering of the DHX35 gene using E. coli
- Conducted computational Flux Balance Analysis on cyanobacteria engineered for biofuel

Organizations and Activities

- CSters: Women in Computer Science, Rice University 2017 - present
- CS Club, Rice University 2017 - present
- Society of Women Engineers (SWE), Rice University 2017 - present
- SASE: Society of Asian Scientists and Engineers, Rice University 2017 - present
- Club Tennis, Rice University 2017 - present
- Music: sing, record, perform, take lessons soundcloud youtube 2007 - present
- PyLadies: Austin community of women Python programmers, team programming, presentations 2015 - 2017