Ashley D'Souza

■ akd6@rice.edu ■ 512-258-8189
■ Home page: ashdza.github.io ■ Github: github.com/ashdza

Education

Rice University
Fall 2017 - present
Houston, TX

- Computer Science, Graduating May 2021, GPA: 3.21

Westwood High School
Fall 2013 - 2017
Austin, TX

- GPA: 4.0/4.0 (5.58/5.0 weighted), Graduated May 2017

Presentations & Awards

Int'l. Soc. for Computational Biology / Rocky Mountain Bioinformatics Conference more
Dec 2016
Colorado

- PyoFuel: Using Python and Pathway Tools to engineer Synthetic Biofuel (poster session presenter)

Projects

Lentil - A Musician's Feedback Service repo
Summer 2018 - present

- Conceive, design, and implement a web-based musician feedback service (ReasonML)
- Students submit recordings of performances and receive pointed feedback from teachers

Physics Sunset repo
Summer 2017

- Design and implement browser-based interactive graphical simulation of a physics problem (ReasonML)

Disease Transmission Analysis
Spring 2018

- Design and implement Rooted-Directed Minimal Spanning Tree algorithm (Python)
- Analyze genetic + epidemiological data from 2011 disease outbreak to infer the disease transmission tree

DNA sequence alignment
Spring 2018

- Design and implement DP solutions to two DNA sequence alignment problems (Python)
- Align human and fruit-fly protein sequences to identify the PAX domain within the "eyeless" gene

Phylogenetic (Evolutionary) Trees
Spring 2018

- Infer the optimal evolutionary tree, given DNA sequences for the leaf taxa (Python)

Hidden Markov Models and Part-of-Speech tagging
Spring 2018

- Implement statistical training of HMM model 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 repo
Fall 2010-2011

- Conceive, design, build, and program an Arduino-based robot to test properties of food samples

Software Development Skills

Programming Languages
2013 - present

- Proficient: Python, Java, ReasonML / OCaml
- Basic: C, Racket, Pyret, Elm, Html

Software Design
2013 - present

- Systematic Program Design - Designing Data & Functions, EdX course based on HtDP2
- Functional programming with types

Software Testing
2017 - present

- Elements of Test-Driven Development
- Python testing using Pytest, Java testing using JUnit Jupiter

Work Experience

UT Austin Summer Research Academy - College of Natural Sciences
Summer 2015 & 2016
Austin, TX *Summer intern*

- DNA extraction, splicing, and recombineering of the DHX35 gene using E. coli
- Worked with Dr. Al Mackrell in the Vertebrate Interactome Mapping Lab
- Conducted computational Flux-Balance Analysis on cyanobacteria engineered for biofuel

Organizations and Activities

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