David Fan

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Education

Princeton University
September 2015- May 2019

B.S.E in Computer Science, Certificates in Statistics and Machine Learning, Quantitative and Computational Biology
Coursework: Algorithms and Data Structures, Programming Systems, Big Data, Contemporary Logic Design, Probability and Stochastic Systems, Reasoning about Computation, Statistics, Linear Algebra, Multivariable Calculus, Quantitative Principles in Cell + Molecular Biology, Mandarin Chinese

Skills

Software Development
- Java
- Python
- C
- Assembly (x86_64)
- JavaScript
- HTML5/CSS3 (Bootstrap)
- MATLAB
- Git

Data Science
- R (dpylr, tidyr, ggplot2, shiny, chloroplethr, rmysql, grid)
- Python
- SQL

Wet Lab
- Gel electrophoresis
- PCR
- Restriction mapping
- Site-directed mutagenesis

Experience

Undergraduate Grader
2016 - Present

Princeton University Department of Computer Science
- Graded and provided feedback for student-submitted programming assignments in Java for 400+ student course.

Data Science Intern and Web Developer
Summer 2016

Harvard-MIT HST Bioinformatics Program
- Developed web tool for visualizing geographic trends in AETNA insurance and US Census data using R and MySQL.
- Performed analysis on diabetes and BRCA incidence as proof-of-concept of tool – pending publication.
- Contributed to open-source client-side web application for bioinformatics analysis (www.ubit2.com) - pending publication.

Leadership

Organizer
2016 - Present

HackPrinceton
- Coordinated workshop schedule, category prizes, bus routes and created starter kit for 600 person hackathon.

Cofounder and Director
2016 - Present

Princeton University Science Olympiad
- Recruited 100+ volunteers, won $5000 in funding from eleven academic centers, handled logistics for all 23 competition events.
- 600 high school students competed. Article on us at https://ehs.princeton.edu/news/science-olympiad-comes-princeton

Logistics Director
2016 - Present

PUMaC (Princeton University Math Competition)
- Worked with public safety to set building access permissions, ordered food, t-shirts, trophies/medals and organized staff trips.

Projects

UBiT2
Open-source client-side web app for visualization and analysis of RNA-seq and qPCR data. Computation done entirely in browser.
Technologies Used: JavaScript (JQuery, D3), HTML5/CSS3 (Bootstrap)

CWAS
Plots chloropleth maps of USA at the county, state or regional level from user-inputted data, AETNA claims or US census data
Technologies Used: R (Shiny, chloroplethr, ggplot2, rmysql, grid), MySQL

Publications

[3] (Pre-print) Fan, J, **Fan, D**, Slowikowski, Kamil, Gehlenborg, K, Kharchenko, P. (2017). UBiT2: a client-side web-application for gene expression data analysis.
[2] Kopp, Z. A, Hsieh, J, Li, A, Wang, W, Bhatt, D. T, Lee, A, Kim, S. Y, **Fan, D**, … Park, Y. (2015). Heart-specific Rpd3 downregulation enhances cardiac function and longevity. *Aging, 7*(9), 648-660. doi:10.18632/aging.100806
[1] Lin, S, Wang, X, Kamiya, Y, Chern, G, Fan, F, **Fan, D**, … Cheong, S. (2014). Topological defects as relics of emergent continuous symmetry and Higgs condensation of disorder in ferroelectrics. *Nature Physics, 10*(12), 970-977. doi:10.1038/nphys3142

Awards Won

Princeton Innovation Magazine 25 Under 25 **February 2016**
Intel Science Talent Search Semifinalist **January 2015**
USA Biology Olympiad Semifinalist **March 2015**