David Fan

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EDUCATION

PRINCETON UNIVERSITY
B.S.E in Computer Science
Cert. in Computational Bio
2015-2019
GPA: 3.7/4.0

MONTGOMERY HIGH SCHOOL
High Honors
2011-2015
GPA: 4.0/4.0 | SAT: 2390 | SAT II (perfect): Biology, Chemistry, Math

SKILLS

PROGRAMMING
Proficient:
Java
Working:
Python • SQL • Javascript • HTML/CSS • LaTeX• Wordpress • Git

LAB
Gel electrophoresis, high-temperature transport (i.e. resistivity) measurements, depth-profiling analysis, applications of graph theory to materials, *Drosophila* fly work, paper writing, poster presenting

COURSEWORK

CURRENT
Algorithms and Data Structures
Linear Algebra
General Physics II
Fundamentals of Statistics
Economic Inequality

COMPLETED
Introduction to Computer Science
Multivariable Calculus
General Physics I
Writing Seminar
Intensive Third-Year Modern Chinese I

HIGH SCHOOL
Advanced Placement (AP): Computer Science, Physics C Mechanics/Electricity and Magnetism, Calculus AB/BC, Chemistry, Biology, English Language + Literature, Micro/Macroeconomics, US History, Environmental Science, Chinese, Psych.

MY LINKS

Github:// **dfan97**
LinkedIn:// **davidfan97**
My Site:// **davidfancv**

WORK EXPERIENCE

5ETEK (SECOND YEAR STARTUP) | Partner + Web Developer
Jun. 2015 – current | Skillman, NJ

- Developed growth and marketing strategies, launched outreach campaign at local high schools, rewrote 5 year company mission statement and wrote competition grant applications.
- Developed step-by-step circuitry modules for 5eTEK's proprietary platform. Incorporated into STEM curriculum for local schools
- Built showcase website for community projects using Wordpress and PHP/HTML/CSS.

YU'S ELITE CENTER | Instructor
Apr. 2015 - current | Bridgewater, NJ

- Teach fast-paced Science Olympiad competition prep to middle schoolers.
- Individually developed all curriculum for the class.

CODING EXPERIENCE

PSEUDO-RANDOM TEXT GENERATOR | COS 126 Course (Java)

- Takes a kgram-string of size k and simulates a stochastic process in which the frequency of each subsequent character from input text is stored in a **symbol table** data structure
- After reading input, pseudo-random text is generated using the probabilistic distribution of characters after each kgram from the input text.
- Full listing of coursework coding projects may be found at my personal site

TRAVELING SALESMAN GREEDY HEURISTIC | COS 126 Course (Java)

- Attempts to optimize the total distance traveled by adding each subsequent city to the place in the already existent tour that results in the least total increase in distance.
- The order of the tour is implemented with a linked list

STAYFRIENDZ | HackPrinceton 2015

- Web app that reminds you to eat with people you haven't seen in a while.
- Uses Express.js, Postgre SQL, Facebook Graph API; hosted on Heroku

CHARITOURNEY | BattleHack NYC 2015 (click link)

- Web app that features charities in brackets to win funds from the public.
- Built on Node.js + Postgre SQL framework and Javascript, Jade and CSS

SHADE | AP Computer Science Final Project

- Simple platformer game using Java that incorporates multi-class inheritance.

RESEARCH PROJECTS

NEW JERSEY MEDICAL SCHOOL | Paid Research Intern
Jun. 2014 – Aug. 2014 | Dept. of Cell Biology and Molecular Medicine
Conducted lifespan + stress assays on transgenic fruit flies and in-vivo heartbeat measurements to explore effects of Ras GTP-RAF-MEK-ERK signaling pathway on organismal + organ senescence. My data is published in Figures 3,5+7.[2]

RUTGERS UNIVERSITY PHYSICS | Paid Research Intern
Jun. 2013 – Aug. 2013 | Center for Emergent Materials
Depth-profiled topological defect distribution in rare-earth hexagonal manganites annealed from above ferroelectrical critical point to provide experimental basis for derivation of vortex-antivortex correlation function. My data is in Figure 3.[1]

PEER-REVIEWED PUBLICATIONS

AGING | September 2015

[2] *Heart-specific Rpd3 downregulation enhances cardiac function and longevity.*

NATURE PHYSICS | December 2014

[1] *Topological defects as relics of emergent continuous symmetry and Higgs condensation of disorder in ferroelectrics.*

AWARDS AND HONORS

2016	School	Princeton Innovation 25 under 25
2015	National	**Intel Science Talent Search (STS) Semifinalist**
2015	National	USA Biology Olympiad (USABO) Semifinalist
2015	School	MHS Visionary Award for STEM Outreach
2015	top 0.1%	National Merit Scholarship Winner
2015	State	NJ Science Olympiad Gold Medalist (x4): 2011, 2013-15
		NJ Science Olympiad Top 4 Team 2010-2015
2014	80/1000	Governor's School of Engineering and Tech. Scholar
2014	10^{th}/200	Merck Science Day Competition

ACTIVITIES AND LEADERSHIP

INNOVATION MAGAZINE | Initiatives Team and Web Team

Sept. 2015 – current | Princeton University

- Innovation is Princeton's premier undergraduate publication for science writing and journalism.
- I started Innovation's first nationwide essay competition for high schoolers in November 2015 - January 2016

STUDENT AMBASSADORS FOR PRINCETON UNIVERSITY CONCERTS | Freshmen Representative

Sept. 2015 - current | Princeton University

- Promoted concerts by internationally renowned performers including Isabelle Faust and Emmanuel Pahud via social media and increased student attendance at these events to promote classical music on campus.

MIT SCIENCE OLYMPIAD | Competition Event Supervisor

January 2016 | Massachusetts Institute of Technology

- The 2016 MIT SciOly Invitational hosted 70 high school teams, 27 of which had previously competed at the National Tournament.
- Cowrote a 270 point test for the "Green Generation" event, administered the test on competition day and completed scoring/grading.

MONTGOMERY HIGH SCHOOL SCIENCE OLYMPIAD | Team Captain and Tournament Director

2009 - 2015 | Skillman, NJ

- Team placed as high as second at the State Competition, and consistently placed in the Top 4 Overall. I won 32 career medals at Regional and State level competitions including 4 State gold medals.
- In 2015, I led my team to its best overall score and most medals won since 2005
- Was **tournament director** for New Jersey's first Science Olympiad Invitational tournament - the 2016 "Cougar Invitational" hosted at Montgomery High School.
- 26 teams from four states attended. I supervised team registration, competition day logistics, finances and solicited test writers + volunteers