Anirudh Suresh

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EDUCATION

Harvard University—Cambridge, MA; A.B. in Mathematics (2019), S.M. in Computer Science (2020) **8/16 – 5/20**
GPA: 3.87/4.0; Relevant Courses: Semester 1—Microecon. (ECON 10A), Intro to Probability (STAT 110), Natural & Artificial Intelligence; Semester 2—Macroecon. (ECON 10B), Applied Quantitative Finance (STAT 123), Machine Learning (CS 181), Introduction to Theoretical Statistics (STAT 111); Semester 3—Graduate Probability I (STAT 210), Group Theory and Abstract Algebra (MATH 122), Graduate Machine Learning (CS 281), Entrepreneurship in Contemporary Developing Countries (SW 47); Semester 4—Graduate Natural Language Processing (CS 287R), Data Structures and Algorithms (CS 124), Galois Theory (MATH 123), Smooth Manifolds (MATH 132), Fukaya Categories (MATH 91R), Mathematical Logic (PHIL 144, audit)

St. John's School—Houston, TX **8/12 – 5/16**
GPA: 98.21/100 Weighted; SAT: 2400; Relevant Courses: AP Calculus BC, AP Statistics, Differential Equations, Multivariable Calculus, Linear Algebra, Partial Differential Equations, Complex Analysis, Scientific Research and Design

Kennedy-Lugar Youth Exchange and Study Abroad (YES Abroad) Scholar **7/13 – 6/14**
Represented U.S. Department of State as a youth ambassador to Malaysia to promote mutual understanding between U.S. and nations with significant Muslim populations.

WORK EXPERIENCE

DRW: Quant Trading Intern; Chicago, IL **6/18 – 8/18**
Developing trading strategies and frameworks from a quantitative perspective. Working on the fixed income options group at DRW headquarters in Chicago.

Central Bank of Armenia: Research Intern; Dilijan, Armenia **6/17 – 8/17**
Developed a heterogeneous, reinforcement learning model of bank bailout situations and policy to quantify moral hazard, compare against empirical results, propose optimal central bank bailout policy, and explore the effects of asset volatility. See the paper, soon to be published as a CBA working paper, here.

Photobutler: Data Science Intern; Boston, MA **1/17 – 5/17**
Worked as a data science intern to devise and improve machine learning algorithms focused on image classification and scoring.

GGU Consulting **12/16 – present**
Serving as a college advisor and essay reader for high school students.

TripAdvisor: Search Engine Marketing (SEM) Data Science Intern; Needham, MA **6/16 – 7/16**
Created advanced mathematical models to predict the value of clicks on TripAdvisor's website. Used data analysis and machine learning to create a model of customer conversion rate of clicks on TripAdvisor's instant booking properties.

RESEARCH

Visual Computing Group—Harvard and MIT **8/17 – present**
Researching in a group that uses machine/deep learning and computational techniques to better process and understand visual information, visualization, and perception.

Rice University—Mentor: Dr. Richard Wolf **9/14 – 8/16**
Developed an improved computational model of auroral arcs in the plasmasheet region of the Earth's magnetosphere. Used magnetospheric physics, numerical methods (e.g. difference equations), and Mathematica to construct a step-up model of plasmasheet field lines. Research available here.

MD Anderson Cancer Center—Mentors: Dr. Anirban Maitra, Dr. Sanjay Shete **6/14 – 8/15**
Summer 2015: shadowed at Department of Pathology to gain insight into a liquid biopsy effort intended to reveal more information about cancer biomarkers in the blood.
Summer 2014: Implemented statistical methods in genetic research relating to head-and-neck cancer using R.

The University of Houston—Mentor: Dr. Suncica Canic **6/13 – 8/13**
Contributor to NSF-supported project "Fluid-multi-layered-structure interaction problems": mathematically modeled human arterial wall as a multi-layered structure using MATLAB to improve stent specificity to particular conditions in blood vessels.

AWARDS AND HONORS

2017 Interdisciplinary Contest in Modeling Outstanding Winner **April 2017**
Deemed one of four outstanding winners in the 2017 ICM with a mathematical analysis of Mars colonization opportunities and initiatives in 2100. See the paper here.

2016 Moody's M3 Mathematical Modeling Competition Winner **April 2016**
Won M3 Competition with mathematical analysis of opportunities for U.S. car-sharing industry. Presented our team's solution to a judging panel of mathematicians in NYC.

Presidential Scholars Program Semifinalist, National Merit Finalist **April 2016**

Siemens Competition Regional Finalist **November 2015**
Submitted research I conducted on auroral arcs in the magnetosphere (See "Research" Section).

U.S.A. Bio Olympiad (USABO) Semifinalist, American Invitational Mathematics Examination (AIME) Qualifier **March 2015**

SCHOOL ACTIVITIES

Harvard WorldMUN
Chairing the SPECPOL committee for the annual Harvard WorldMUN conference in Panama City in March 2018. Facilitated debate and resolutions regarding the sovereignty and rights of uncontacted and unmarked cultures. Serving as Under-Secretary-General of the General Assembly (USGGA), overseeing the general assembly committees of nearly 1500 delegates in March 2019.

Harvard College Association for U.S-China Relations (HAUSCR)
Working to plan some of China's largest high school educational conferences, including HSYLC, China Thinks Big (CTB), HWeek/XWeek, and Dean's List, to introduce Chinese high school students to liberal arts and research education found at American universities.

Harvard Ventures
Served as associate director for Harvard's largest undergraduate entrepreneurship and innovation group.

HackHarvard
Served on the executive board of HackHarvard. Worked to organize the HackHarvard hackathon in October 2016.

Fellows and Study Groups (FSG)
Worked with Sarah Isgur Flores, Carly Fiorina's deputy campaign manager, to set up Harvard-wide study groups about media's role in the election.

Harvard Data Ventures Fellowship; Science, Tech, Engineering, Art, and Math (STEAM) Society
Improved learning algorithms for an educational startup; made federal spending more accessible to public via data visualization with ClearGov.

Harvard Political Review
Staff writer for the Harvard Political Review. Check out my author page.

Harvard Sports Analytics Collective (HSAC)

PUBLICATIONS

Aiming to submit our work "Zero Shot Genome Feature Prediction" (on prediction of genome feature activation in holdout cell types via application of NLP methods to non-coding DNA sequences) to the 2018 ICML and IJCAI Workshop on Computational Biology; presented at a poster session at Harvard.

Contributed to research disproving claims in "Opening the Black Box of Deep Neural Networks via Information" by Shwartz-Ziv and Tishby (2017); presented at a poster session at Harvard.

Suresh, Anirudh. "A Learning-based Model of Central Bank Bailout Decision-making." Central Bank of Armenia Working Paper. https://github.com/anihamde/cba-research.

Suresh, Anirudh et al. "A Brave New World: A Quantitative Model of a Self-Sufficient Martian Society." *MATHmodels.org*. https://github.com/anihamde/icm-2017.

Suresh, Anirudh et al. "Car(e) to Share? A Mathematical Analysis of the Car-Sharing Industry." *Society for Industrial and Applied Mathematics Undergraduate Research Journal*, vol. 9, 2016, pg. 311-332. http://www.siam.org/students/siuro/vol9/.

VOLUNTEER EXPERIENCE

AFS Volunteering **6/14 – 8/16**

Returnee coordinator of Texas/Gulf Coast chapter: communicated with and managed returnees from intercultural exchange programs.

ADDITIONAL SKILLS AND INTERESTS

- Languages: Python (expert), Pytorch/Keras/Tensor Flow (proficient), R (expert), Mathematica (expert), various webscraping platforms (proficient), SQL (proficient), C (prior exp.), MATLAB (prior exp.); Spanish (intermediate), Tamil (fluent)
- Areas of interest: quant finance, tech, entrepreneurship, research, medicine, sports and sports analytics, politics, chess
- Public speaking and leadership skills, persuasive speech in a diplomatic context
- Intercultural learning and awareness; adaptability and flexibility to a variety of cultural or professional settings