

Aditya Gudibanda

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Overview

I am a research engineer with a strong math background and extensive software development experience. I have worked in four labs at two major research universities and published six academic papers. I am passionate about learning new skills and technologies, and I am eager for new opportunities to solve interesting and difficult technical challenges.

Education

Yale University, New Haven, CT, *B.S. in Computer Science and Mathematics*, May 2017

Thesis: Recurrent Neural Networks on the Parity Problem

Representative Coursework:

- Math: Vector Calculus and Linear Algebra (2 semesters), Discrete Mathematics, Real Analysis, Stochastic Processes, Machine Learning, Number Theory, Reflection Groups, Complex Analysis, Modern Combinatorics, Abstract Algebra, Fields and Galois Theory
- Computer Science: Introduction to Computer Science, Data Structures and Programming Techniques, Design and Analysis of Algorithms, Randomized Algorithms, Computational Tools for Data Science, Systems Programming and Computer Architecture, Natural Language Processing

Hume-Fogg Academic Magnet High School, Nashville, TN, *Diploma*, 2013; GPA: 3.99/4.00

Work Experience

Reservoir Labs

Research Engineer, June 2017 – Present

- Working on advanced research and development projects, involving the development of algorithms for machine learning and network engineering. Published two first-author papers and presented at academic conferences. Submitted two Provisional Patent Applications (PPAs).
 - Using C, C++, Python, Apache Spark, Scala, Mercurial, and LaTeX

Research Experience

Yale University School of Public Health

Research Assistant, May 2015 - Present

- Statistically analyzed genome data involving gene expression patterns during embryogenesis of fungi to determine whether certain evolutionary markers are still functionally extant. Published a paper as a result of this work.
 - Used R, C, and Python

Knowsun Consulting

Lead Machine Learning Engineer, May 2016 - Present

- Developed and implemented machine learning algorithms to meet business needs. Regularly communicated with clients to understand business and technology needs and developed algorithms that produced an effective and desired solution. Collaborated with a team of PhD's as well as front-end software engineers
 - Used Python and C

Yale University Department of Bioinformatics

Research Assistant, January 2016 – December 2016

- Created and implemented machine learning systems using statistical frameworks for finding genes linked with cancer to improve detection of novel genes with recurrent mutations in cancer patients. This research identified novel genes for experimental verification of potential cancer treatment.

- Used C++, R, and Python

Yale School of Forestry and Environmental Studies

Research Assistant, November 2014 – September 2015

- Performed data analysis and machine learning to model structure-activity relationships of different compounds to predict cytotoxicity. Published two papers as a result of this work.
 - Used C and Linux

Publications

Gudibanda, A., Giralt, J., Commike, A., Lethin, R. (2018). “Fast Detection of Elephant Flows using Dirichlet-Categorical Inference”. *Supercomputing Conference: Innovating the Network for Data-Intensive Science*. (Accepted)

Gudibanda, A., Henretty T., Baskaran, M., Ezick, J., Lethin, R. (2018). “All-at-once Decomposition of Coupled Billion-scale Tensors in Apache Spark.” *IEEE High Performance Extreme Computing Conference*.

Wang, Z., **Gudibanda, A.**, Ugwuowo, U., Trail, F., & Townsend, J. P. (2018). “Using evolutionary genomics, transcriptomics, and systems biology to reveal gene networks underlying fungal development.” *Fungal Biology Reviews*. <https://doi.org/10.1016/j.fbr.2018.02.001>

Longzhu Q. Shen, Fjodor Melnikov, John Roethle, **Aditya Gudibanda**, Richard S. Judson, Julie B. Zimmerman, and Paul T. Anastas. “Coupled molecular design diagrams to guide safer chemical design with reduced likelihood of perturbing the NRF2-ARE antioxidant pathway and inducing cytotoxicity”, *Green Chemistry*, 2016, **18**, 6387.

Longzhu Q. Shen, Richard S. Judson, Fjodor Melnikov, John Roethle, **Aditya Gudibanda**, Julie B. Zimmerman and Paul T. Anastas. “Probabilistic diagram for designing chemicals with reduced potency to incur cytotoxicity”, *Green Chemistry*, 2016, **18**, 4461.

Aditya Gudibanda, Edward W. Lowe Jr., and Jens Meiler. “The Implementation of Paired Descriptor Functions to Improve Quantitative Structure Activity Relationship Models for Drug Discovery”, *Young Scientist*, 2012.

Honors and Awards

- Qualified for United States of America Junior Mathematical Olympiad (USAJMO)
 - Placed 65th in the nation
- Qualified for American Invitational Mathematics Examination (AIME)
- Intel Science Talent Search Semifinalist
- United States of America Biology Olympiad (USABO) Semifinalist

Skills

Computer Software: C, C++, Python, R, Apache Spark, Scala, Linux (Ubuntu), Unix Shell, LaTeX, Mercurial