Aditya Saligrama

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High school senior and computing enthusiast with research and project experience in machine learning, parallel computing, and systems optimization.

Education

Weston High School (Weston, MA : August 2016 - June 2020)

- Weighted GPA: 4.70 SAT: 1570/1600 SAT II: Math II, Physics: 800/800, World History: 790/800
- Relevant Coursework: AP Calculus BC, AP Physics C, AP Statistics, AP Computer Science A

Projects & Experience

Research Science Institute (Cambridge, MA : June 2019 - August 2019)

Project title: Real-Time, Detailed Tracking of Garbage Collection Activity in Go Programs
Mentors: Samuel Erb, Adam Brockett, Tom Houman, Tim Glynn (Akamai Labs)

- Created a real-time garbage collection monitoring system with per-thread, per-phase detail
- Currently being incorporated into Akamai codebase

MIT PRIMES (Cambridge, MA : January 2018 - Present)

Project I: A Practical Analysis of Rust's Concurrency Story (2018) Mentors: Jon Gjengset, Prof. Frans Kaashoek (MIT PDOS)

- Developed set of concurrent hashmaps that are among the fastest available for the Rust language with over 80 stars on GitHub (github.com/saligrama/concache)
- Presented report on how the Rust language helps and hurts developers in writing concurrent code at the September 2018 Boston Rust Meet-up and at the October 2018 MIT PRIMES conference

Project II: Adversarial Machine Learning (2019) Mentors: Guillaume Leclerc, Prof. Aleksander Mądry (MIT Mądry Lab)

- Investigating effectiveness of ensembling with robust and non-robust features for adversarial robustness

CORELS: Learning Certifiably Optimal Rule Lists (Cambridge, MA : June 2017 - Present)

A machine learning algorithm that builds human-interpretable rule list models
PIs and mentors: Prof. Margo Seltzer (University of British Columbia), Prof. Cynthia Rudin (Duke)

- Co-first author of upcoming paper on systems optimizations that allow algorithm to scale to large datasets
- Key contributor to parallel (multithread) implementation
- Implemented web UI (corels.eecs.harvard.edu) and R language API (github.com/saligrama/rcorels)
- Conducted several experiments on algorithm scalability for systems papers

Independent Project: KnowBias (knowbias.ml : May 2018 - Present)

An award-winning AI algorithm that detects political polarization in online articles in real time

- Won district Congressional App Challenge (2018), MetroHacks III Best Entrepreneurial Hack Award (2018)
- Now used in Weston High School English and history classes.

Wildcat Tracks (Weston, MA : August 2016 - Present)

Co-Editor-In-Chief (2018 - Present), News Editor (2017 - 2018), Photo Editor (2016 - 2017)

- Managing a team of five staff writers and eight section editors
- Significantly increased print and digital article output by 20% in first year as co-editor-in-chief

Publications

- **A. Saligrama**. KnowBias: Detecting Political Polarity in Long Text Content. In *Proceedings of the 34th AAAI Conference on Artificial Intelligence: Student Abstract and Poster Program, AAAI:SAP'20*. arXiV:1909.12230, 2020.
- **A. Saligrama**. KnowBias: A Novel AI Method to Detect Polarity in Online Content. arXiv:1905.00724, 2019.
- **A. Saligrama**, A. Shen, J. Gjengset. A Practical Analysis of Rust's Concurrency Story. arXiv:1904.12210, 2019.
- N. Larus-Stone, E. Angelino, D. Alabi, M. Seltzer, V. Kaxiras, **A. Saligrama**, C. Rudin. Systems Optimizations for Learning Certifiably Optimal Rule Lists. SysML Conference, 2018.

Selected Awards & Honors

- Congressional App Challenge Winner, Massachusetts 5th district (2018)
- MetroHacks III Best Entrepreneurial Hack (2018)
- USA Computing Olympiad, Gold division (2018 - present)
- Providence College High School Programming (Team) Contest, 2nd place (2019, 2018), 3rd place (2017)
- Other awards: National Merit Semifinalist, Wildcat Tracks Journalism Award, AIME Qualifier (2019)