Sunny Nahar

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EDUCATION

CARNEGIE MELLON UNIV.
BS in Computer Science
Minor in Mathematics
Fall 2013 - May 2016 | Pittsburgh, PA
University Honors
GPA: 3.9

UNIV. OF PENNSYLVANIA
Spring 2012 - 2013 | Philadelphia, PA
GPA: 4.0

BENSALEM HS
Fall 2009 - Spring 2013
Class of 2013 Valedictorian

COURSEWORK

GRADUATE
Machine Learning
Abstract Algebra
Lunar Mobile Robotics
Complexity Theory
Algorithms
Parallel Theory
Cryptotheory

UNDERGRADUATE
Operating Systems
Advanced Randomized Algorithms
Computer Systems
Programming Language Design
Parallel Data Structures & Algorithms
Real Analysis & Topology
Matrix Theory & Linear Algebra

SKILLS

PROGRAMMING
30K+ lines: Java • LaTeX
10K+ lines: C • C++ • Python
2K+ lines: JavaScript • HTML • CSS

AWARDS

2015 Putnam Top 500
2015 Top 10 Hack and "Most Technically Challenging" at HackMIT
2014 17/786 in Virginia Tech Regional Math Contest
2014 "Best Hack People Will Use Everyday" at PennAppsX
2013 Hack+ @CMU winning team
2013 Top 40 in nation at ARML
2013 Top 75 in Harvard-MIT Math Tournament
2013 Top 30 in nation in USA Computing Olympiad

EXPERIENCE

GOOGLE | Software Engineer — Aug 2016 -
- Currently working in Search Ranking.

GOOGLE | Software Engineering Intern — May 2015 - Aug 2015
- Worked with the Display & Video Ads Quality team in budget optimization.
- Developed automatic optimal bidding for budget constrained cost-per-click ads using feedback controllers.
- Refactored ads architecture and data flow to improve efficiency.
- Implemented new ads scoring models.

CLOUDRAXAK | Software Intern — May 2014 – Aug 2014
- Designed preliminary software architecture of an automated security startup for large-scale cloud systems.
- Developed a framework for automatic application of security fixes.
- Implemented numerous security fix scripts.

CMU CYLAB | Software Intern — May 2014 – Aug 2014
- Worked under Professor David Brumley in automated software security.
- Experimented with normalizations in feature hashing for improving efficiency in BitShred, a malware classification and semantic analysis tool.
- Integrated CMU's Binary Analysis Platform (BAP) to work with IDA, a high level disassembler.

RESEARCH

SAFARI RESEARCH GROUP | Researcher — Aug 2014 – Present
- Worked with Professor Onur Mutlu and Hongyi Xin to develop faster DNA read mappers.
- Designed and implemented novel heuristics to increase mapper speed and efficiency involving faster database queries and pattern analysis.
- Analyzed numerous approximate seed selection schemes and worked on an optimal algorithm:
  - Oxford Bioinformatics: Hongyi Xin, Sunny Nahar, Richard Zhu, et. al.: Optimal Seed Solver: Optimizing Seed Selection in Read Mapping.
- Worked on parallelizing selection and mapping operations.
- Worked on an extension to the Landau-Vishkin algorithm:
  - Hongyi Xin, Jeremie Kim, Sunny Nahar, et. al.: LEAP: A Generalization of the Landau-Vishkin Algorithm with Custom Gap Penalties

PLANETARY ROBOTICS LAB | Researcher — Aug 2014 – May 2015
- Worked with a team under Red Whittaker building a semi-autonomous rover for commercial moon missions.
- Part of the software development team responsible for hazard detection, path planning, localization, and perception.
- Researched cooperative localization with symbiotic planetary rovers. Created probabilistic state estimate models using Extended Kalman and Grid filters to increase accuracy of position estimates.

CMU CUPS LAB | Research Intern — Jan - Jun 2014
- Worked with Dr. Alain Forget in developing browser sensing technologies.
- Added additional features to existing Chrome and Firefox extensions.
- Improved the workflow of server-side retrievers.