Chinmay Sonar

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Graduate student working in algorithms with a strong mathematical foundation and an enthusiasm for programming

EDUCATION

UC SANTA BARBARA
PHD in Computer Science
Research: Algorithms | GPA: 4/4
Sept 2019 - Present

IIT GANDHINAGAR
MS in Computer Science
July 2019 | Gandhinagar, India
Thesis: Algorithms | GPA: 9.83/10
BTech in Mechanical
July 2017 | Gandhinagar, India

LINKS

Github:// ChinmaySonar
LinkedIn:// chinmay-sonar
Google Scholar:// Chinmay-Sonar

TECH ARSENAL

PROGRAMMING
Python (Proficient), C++ (Good),
C (Good), Shell Scripts (Good),
Socket Programming (Proficient),
Solidity (Good)

OPERATING SYSTEMS/ TOOLS
Ubuntu, Windows, Scikit-learn, Pandas,
MATLAB, Mathematica, blockchain Apps
(DApps), git, LaTeX

COURSEWORK

RELEVANT COURSES
Machine Learning
Advanced Data Science
Linear Algebra, Probability
Blockchain Applications
Graduate course in Cryptography
Graph Algorithms
Randomized Algorithms

ACHIEVEMENTS

– Judge for SB hacks 2021
– Graduate Entrance Fellowship
  (UCSB'19)
– Travel fellowship to present outstanding
  undergraduate research work in
  Luxembourg at ADT 2017
– University topper ACM-ICPC 2017
– Dean's List (IIT Gandhingar 2016,
  2017)

INTERNSHIPS AND EXPERIENCE

UCSB CS | Teaching Assistant
Oct 2019 – Present | UCSB

- CS 130A and CS 130B: Data Structures and Algorithm Design and Analysis
- Taught fundamental algorithmic paradigms in the lab sections with over 50 students
- Assisted students for programming assignments in Python and C++

UNDERGRADUATE RESEARCH INTERN | Clemson University
May 2017 – Aug 2017 | Clemson, SC

- Developed a simulation software for resonance in hydrogel in C and C++
- Created a user-friendly interface to study visualizations in Matlab and Mathematica
- Simulation is used to study mechanical properties of gel by Kuksenok research group

UNDERGRADUATE RESEARCH INTERN | IIT Gandhinagar
May 2016 - August 2016 | Gandhinagar, India

- Implemented popular multiwinner election rules in Python
- Designed efficient algorithms for election winner determination resulting in publication at Algorithmic Decision Theory 2017 conference

SELECTED PROJECTS

ELECTRICITY GENERATION PREDICTION MODEL | ML
Jan 2019 - Apr 2019 | IIT Gandhinagar (in collaboration with Govt. of India)

- Built and compared multiple generation prediction models (time series analysis)
- Yielded over 75% accuracy with 5 years of training data

LOW RANK MATRIX APPROXIMATION | Advanced Data Science
Jan 2017 - Apr 2017 | IIT Gandhinagar

- Implemented a sampling and alternating minimization based algorithm for *low rank factorization*
- Algorithms give 25% speedup for the task of collaborative filtering on the Movielens 100k dataset

BLOCKCHAIN MODEL | Advanced Distributed Systems
Jan 2020 - Apr 2020 | UCSB

- Developed and implemented a distributed consensus protocol (algorithm) for distributed ledger (Blockchain)
- 1000+ lines of code in Python with socket programming and multiprocessing

ANONYMOUS ELECTIONS ON BC | Blockchain Applications
Sep 2020 - Dec 2020 | UCSB

- Developed and implemented anonymous voting protocol to conceal the voter identities
- Protocol scaled efficiently on a private ethereum network with only a linear time overhead compared to conspicuous protocol

PACE 2019 | International Coding Challenge
March 2019 - June 2019 | Organizer: TU Vienna, Austria

- Designed and implemented an efficient algorithm to compute network robustness
- Scaled efficiently on large real-world graphs with 10k nodes in Python

SELECTED PUBLICATIONS

[1] D. Lokshtanov, **C. Sonar**, S. Suri, and J. Xue. Fair covering of points by balls. *CCCG 2020*, Canada – Investigated clustering for a diverse population.

[2] **C. Sonar**, P. Dey, and N. Misra. On the complexity of winner verification and candidate winner for multiwinner voting rules. *IJCAI 2020*, Japan.