

# Chinmay Sonar

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Grad student working in AI & 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

Expected graduation: March 2024

### IIT GANDHINAGAR

#### MS IN COMPUTER SCIENCE

July 2019 | Gandhinagar, India

Research: AI/Fairness | GPA: 9.83/10

#### BS IN MECHANICAL

(with a minor in CS)

July 2017 | Gandhinagar, India

## LINKS

Github:// [ChinmaySonar](#)

LinkedIn:// [chinmay-sonar](#)

Google Scholar:// [Chinmay-Sonar](#)

## TECH SKILLS

### Programming & Scripting

Python, C++, C, Shell Scripts, Ruby

### Machine Learning & Deep Learning

PyTorch, scikit learn, keras, pandas

### Miscellaneous

HTML, CSS, docker, AWS Lambda, version control, unit testing, integration testing,  $\LaTeX$ , Mathematica

## COURSEWORK

### RELEVANT COURSES

Deep Learning on Graphs

Graduate Machine Learning

Advanced Distributed Systems

Scalable Internet Services

Linear Algebra, Probability

Blockchain Applications

## ACHIEVEMENTS

- University topper ACM-ICPC 2017
- Travel fellowship to present outstanding undergraduate research work at ADT 2017, Luxembourg
- Department Summer Research Stipend Award (UCSB'21)
- Dean's List (IIT Gandhinagar 2016, 2017)

## INTERNSHIPS AND EXPERIENCE

### GRADUATE RESEARCHER | UCSB CS

Oct 2019 – current | Algorithms and Game Theory Lab

- Design of exact and approximation algorithms with provable guarantees for problems motivated from fairness in AI (ComSOC) and computational geometry
- Publications in several top AI and theory conferences

### TEACHING ASSISTANT | UCSB CS

Oct 2019 – June 2021 | UCSB

- CS 130A and CS 130B: Data Structures, and Algorithm Design and Analysis

### UNDERGRADUATE RESEARCH INTERN | CLEMSON UNIVERSITY

May 2017 – Aug 2017 | Clemson, SC

- Developed a simulation software for resonance in hydrogel samples in C and C++
- Created a user-friendly interface to study visualizations in Matlab and Mathematica

## SELECTED PUBLICATIONS

- [1] Multiwinner Elections under Minimax CC-rule in Euclidean Space.  
C. Sonar, S. Suri, J. Xue. In Submission to **AAAI 2022**.
- [2] Anonymity-Preserving Space Partitions.  
U. Hebert J, C. Sonar, S. Suri, V. Surianarayanan. In **ISAAC 2021**.
- [3] On the complexity of Winner Verification & candidate winner for multiwinner voting rules.  
C. Sonar, P. Dey, N. Misra. In **IJCAI 2020**.
- [4] Fair Covering of Points By Balls.  
D. Lokshtanov, C. Sonar, S. Suri, J. Xue. In **CCCG 2020**.

## SELECTED PROJECTS

### LEARNING STRUCTURED SPARSE RECOVERY | DEEP LEARNING

Mar 2021 - June 2021 | UCSB

- Proposed, implemented Q-leaning agent to recover model for sparse compressive sensing
- Agent trained for 15k iterations outperforms the individual baseline algorithms for several underlying graph based models

### ONLINE MEETING SCHEDULER | SCALABLE INTERNET SERVICES

Jan 2021 - Mar 2021 | UCSB

- Worked in a team of six with scrum framework to [build](#) an online service to find optimal meeting time for large groups using Rails
- Scaled with server side caching & optimized database queries to handle 50k+ users/min.

### 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

### PYTHON GARBAGE COLLECTOR ANALYSIS | RUNTIME SYSTEMS

Apr 2020 - June 2020 | UCSB

- Understood internal functionality and parameters for Python and PyPy GC
- Created custom visualizer to examine performance effects with parameters

### 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