Sai Anurudh Reddy **Peduri**

anurudh.peduri@research.iiit.ac.in | anurudhp | Anurudh Peduri

Education

International Institute of Information Technology, Hyderabad (IIIT-H)
Hyderabad, India

Master of Science by Research in Computer Science — *Aug 2019 - Present*

Supervised by Prof. Kannan Srinathan

CGPA: 9.00/10.00

Research Interests: Graph Theory, Complexity Theory, Cryptography, Quantum Complexity Theory, Formal Verification (Automated Theorem Proving)

International Institute of Information Technology Hyderabad (IIIT-H)
Hyderabad, India

Bachelors in Technology (with Honors) in Computer Science and Engineering (B.Tech in CSE) — *Aug 2015 - May 2019*

CGPA - 8.09/10.00

Relevant Courses : Complexity Theory, Principles of Information Security, Principles of Programming Languages, Advanced Algorithms, Quantum Information and Computation, Graph Theory

Experience

Remote Research Intern, University of Edinburgh
June 2020 - Present

- Working at the Compilers and Runtime Systems Lab at UoE, under the guidance of Dr. Tobias Grosser.

Teaching Assistant, IIIT-H
Monsoon 2017 - Monsoon 2019

- Teaching Assistant for *Discrete Mathematics (Monsoon 2017)*, *Data Structures (Spring 2018)*, *Linear Algebra (Monsoon 2018)*, *Principles of Information Security (Spring 2019)*, *Algorithms (Monsoon 2019)*
- The role involves conducting tutorials and labs for undergraduate students. Was also involved in setting and evaluating assignments and exams.

Club Coordinator, IIIT-H
Monsoon 2016 - Spring 2020

- Programming Club: Organized programming contests. Gave talks on topics such as Graph Theory, Computational Geometry, Flows and Fourier Analysis.
- Theory Reading Group: Hosted a reading group for Quantum Field Theory, and one for Quantum Computing. Gave talks on Quantum Algorithms and Complexity Theory. We had weekly meets to discuss the topics.
- Chess Club: Hosted intra-college tournaments.

Volunteer, NWQIIS 2018
Monsoon 2018

- Volunteered at the **National Workshop on Quantum Information and Information Security, 2018**, held at IIIT Hyderabad. The workshop had various speakers deliver talks on Quantum Information, Computing and Information Security and Cryptography.

Problem Setter, CodeCraft ’18
IIIT-H 2017 - 2018

- Helped in problem setting and testing for CodeCraft ’18. Tasks involved writing and verifying solutions, generating strong test-data, and overseeing the contest (answering clarifications etc.)
- CodeCraft is IIIT-H’s annual algorithmic programming competition.

Achievements

ACM International Collegiate Programming Contest (ACM ICPC)
2017 - 2020

- ICPC 2020: Member of team **tesla_protocol** which placed **7th** at the Asia West Continent Finals, and qualified for the **ACM ICPC World Finals 2020**, to be held in Moscow, Russia. Also placed 6th in the Asia Amritapuri Onsite Round and 4th in the Asia Kanpur Onsite Round
- ICPC 2019: Member of team tesla_protocol which placed 3rd in the Asia Gwalior-Pune Onsite Round and 5th in the Asia Amritapuri Onsite Round.
- ICPC 2018: Member of team Tesla which placed 3rd in the Asia Kharagpur Onsite Round and 4th in the Asia Amritapuri Onsite Round.
- ICPC 2017: Member of team tesla_protocol which came 8th in the Asia-Amritapuri Onsite Round.
- The ACM ICPC is the most prestigious programming competition at the college level.

Microsoft Q# Coding Contest
Summer 2018

- Placed **18th** out of 400 participants in the Microsoft Q Coding Contest, held on Codeforces.
- The contest featured problems on quantum algorithms and protocols.

Codechef Snackdown 2016
Summer 2016

- Member of team lamecoders which was **6th among Indian teams** and was **ranked 24th internationally** in the final round.
- Ranked 21st among Indian teams in the online elimination round out of 1000+ Indian teams.

Codeforces *2015 - Present*

- Handle: **codelegend**. Peak rating: **2475** (Title: Grandmaster). **Top 5 in India** out of 17000+ users, and Top 400 in the world out of 70000+ users.
- Codeforces is a platform that regularly hosts algorithmic programming contests. Rating is based on performance in these contests.

IOI Training Camp *2013, 2015*

- Selected for the International Olympiad in Informatics Training Camp 2015 (IOITC-2015), held in Bangalore, India. A total of 30 students out of 1000+ school students were selected.
- Selected for the International Olympiad in Informatics Training Camp 2013 (IOITC-2015), held in Bangalore, India. A total of 22 out of 5000+ school students were selected.
- The IOI is the most prestigious programming competition at the school level. The IOITC is a 10 day training camp on programming and algorithms.

Dean's List *IIIT-H Monsoon 2015*

Received the Dean's Merit List Award for Distinction in first class for the Monsoon 2015 semester.

Projects

Shor's Algorithm *Spring 2019*

Implemented an algorithm for efficient Integer Factorization (Shor's Algorithm) in Microsoft Q. [github]

Decaf Compiler *Monsoon 2018*

Implemented a compiler for a simplified C-like language, using GNU (Flex/Bison) and LLVM tools. Has loops, functions, and recursion. Supports strict typechecking, and runtime error checks. Implemented in C++. [github]

Sentiment Analysis *Monsoon 2017*

Implemented a Convolutional Neural Network (CNN) for binary sentiment analysis ofreviews. Used word-2-vec to map the text to vectors, and compared accuracies of different CNN architectures, as described in this paper. Implemented inPython, using the Pytorch library. [github]

AI Bot for Ultimate Tic-Tac-Toe *Spring 2017*

Part of a team of two that created a bot that played a 4x4x4x4 version of Ultimate TicTac Toe. The bot used the min-max algorithm with iterative deepening and a heuristic. Our bot placed **2nd** out of 80+ bots in a tournament conducted among the bots of all students in the course. [github]

Simple Linux Shell *Monsoon 2016*

Implemented a basic Bash-like shell with features including piping, I/O redirection,background processes, suspending the active process, and fg. Implemented in C using system calls (fork, exec, etc.) [github]

Participation

Seminar on Quantum Complex Networks *Zhejiang University, Summer 2019*

- Attended a two week long lecture series delivered by Prof. Lincoln D Carr, at the School of Mathematical Sciences, Zhejiang University, Hangzhou, China.
- Topics covered included Graph Theory, Complex Network Theory, Multi-particle Quantum Systems, Quantum Phase Transitions and Open Quantum Systems.

Summer School on Quantum Information Theory *ISI Kolkata Summer 2018*

- Attended a one-month long summer school conducted at Indian Statistical Institute, Kolkata, India, on Quantum Information Theory and Computation, organized by Prof. Guruprasad Kar.
- The summer school had lectures on selected topics in Quantum Information and Computation, such as Quantum Foundations, Non-Locality, Cryptography, Game Theory and Oracle-based algorithms.

Skills

Programming Languages	C/C++, Python, Haskell (basic), Q#, Bash, Java, Lisp (Racket) (basic), SQL (basic)
Theorem Provers	Coq, Lean (basic)
Libraries/Frameworks	Flex/Bison, LLVM, LLVM-MLIR, PyTorch (basic)