Sankara Sai Chaithanya, Rayudu

Department of Physics & Astronomy, University of New Mexico
E-mail: chaithanyarss@unm.edu
Phone: (+1) 5053606011
Website: https://www.chaithanyarss.com

Education

Jan'21 - Present	**Center for Quantum Information and Control (CQuIC)** PhD Candidate University of New Mexico Department of Physics and Astronomy
Aug'14 - May'19	**Indian Institute of Technology Madras** Dual degree (B.Tech & M.Tech) Major: *Electrical Engineering* Minor: *Physics*

Work Experience

July'19 - Dec'20	**Software Engineer** - *Texas Instruments, Bangalore* Designed and tested speaker protection and audio enhancement algorithms for micro speakers. Developed firmware for low-power audio amplifiers.

Publications

1. "An SU(2)-symmetric Semidefinite Programming Hierarchy for Quantum Max Cut" arxiv:2307.15688
   Jun Takahashi, **Chaithanya Rayudu**, Cunlu Zhou, Robbie King, Kevin Thompson, Ojas Parekh

2. "Quantum Bicyclic Hyperbolic Codes" Quantum Inf Process 19, 228 (2020)
   Sankara Sai Chaithanya Rayudu, Pradeep Kiran Sarvepalli

Conferences & Poster Presentations

June'23	Presented a poster on '*Application of SWAP-operator algebra for anti-ferromagnetic Heisenberg models via semi-definite programming*' at **Adiabatic Quantum Computing (AQC) - 2023** conference in Albuquerque, New Mexico, USA.
October'22	Presented a poster on '*Transition Network Method for Stoquastic Heisenberg Hamiltonians*' at **Southwest Quantum Information and Technology (SQuInT) - 2022** conference in Berkeley, California, USA.
January'19	Presented a poster on '*Quantum Bicyclic Codes*' at **Quantum Information Processing (QIP) - 2019** conference in Boulder, Colorado, USA.

Relevant Course Work

- Quantum Mechanics (I,II)
- Quantum Computing and Quantum Information (I,II)
- Quantum Error Correction
- Quantum Field Theory
- Quantum Optics (I, II)
- Error Control Coding
- Modern Coding Theory
- Approximation Algorithms
- Theory of Deep Neural Networks

Teaching Experience

Jan'21 - May'21	**Teaching Assistant** *Course: Algebra-based Physics Lab* *University of New Mexico*
Aug'18 - Dec'18	**Teaching Assistant** *Course: Quantum Computing and Quantum Information* *Instructor: Dr. Prabha Mandayam*

Other Projects and Experiences

June'19	**JTG Summer School 2019** - *IIT Madras* Dr. Michelle Effros (Caltech): Network Information Theory Dr. Praneeth Netrapalli (MSR): Introductory Course on Optimization
July'18	**JTG Summer School 2018** - *IIT Bombay* Dr. Rüdiger Urbanke (EPFL): How physics and computer science helped us build better codes Dr. Ashish Goel (Stanford): Topics in social algorithms.
May'16 - Jan'17	**IIT Madras Student Satellite Project** *Advisors: Dr. David R Koilpillai and Dr. Harishankar Ramachandran* Worked as a part of the team responsible for developing the command and data management system for a student satellite. Created schedules of various tasks and communications between different peripherals of satellite in Real Time Operating System to ensure the smooth functioning of the satellite.

Scholastic Achievements

- In the top 0.02 percentile of the one Million applicants of JEE Mains 2014
- Ranked 288 among more than 126,000 applicants of JEE Advanced Exam 2014
- Ranked among the top 300 in the Indian National Physics Olympiad, Indian National Chemistry Olympiad, and Indian National Astronomy Olympiad in 2014.
- A two-year scholarship for high school by Bhashyam Educational Institute on the basis of scholastic merit.