Aravind Reddy Talla

Curriculum Vitae

✉ *arareddy@cse.iitk.ac.in*
aravindreddy.org

Education

2014–2018 **B.Tech in Computer Science and Engineering with minor in Physics**, *Indian Institute of Technology Kanpur*, CPI - 8.7/10 (At the end of 6 semesters).

2014 **Higher Secondary School**, *Sri Chaitanya Narayana Junior College*, Vijayawada, Andhra Pradesh, India, *98.0%*(State top one percentile).

Research Experience

Summer 2017 **Paris Centre for Quantum Computing**, *Université Paris Diderot*, Paris.
Mentors: *Prof. Eleni Diamanti, Prof. Iordanis Kerenidis* Funded(partly) by Charpak
Outline: We designed two new protocols for quantum repeater networks for sharing tripartite entangled states. I analyzed them mathematically and also performed their Monte Carlo simulations using Octave. Results in preparation.

Fall 2016 **IIT Kanpur**.
Mentor: *Prof. Rajat Mittal*
Outline: Studied about Nonlocal games and their quantum strategies. Project Report.

Summer 2016 **Centre for Quantum Technologies**, *National University of Singapore*, Singapore.
Mentor: *Prof. Hartmut Klauck*
Outline: Studied about complexity theory in general and relations between query and communication complexities of a subclass of composed functions(related to "Rectangles are Nonnegative Juntas" by Göös et.al)

June & December 2015 **Indian Institute of Science Education and Research**, *Kolkata*.
Mentor: *Prof. Prasanta K. Panigrahi* Funded by the NIUS Scholarship
Outline: Studied about quantum computing in general and some aspects of quantum cryptography like QKD protocols and quantum money schemes.

Awards & Scholastic Achievements

2017 **Charpak Scholarship for research internship**, *French Government*.

2015 **National Initiative on Undergraduate Science Scholarship**, *HBCSE(TIFR)*.

2015 **Academic Excellence Award**, *IIT Kanpur*.

2014 **Gold Medallist**, *Indian National Physics Olympiad*, National top 35, participated in the Orientation cum Selection camp(OCSC) for the Indian team for International Physics Olympiad 2014.

2014 **Ranked 189 out of 120 thousand applicants**, *JEE Advanced*.

2014 **Ranked 206 out of 1.4 million applicants**, *JEE Main*.

Coursework: (∗)Graduate course, (†)Fall 2017, (‡) Spring 2018

Theoretical Computer Science	Quantum Computing*, Modern Cryptology*, Computational Complexity†*, Algorithmic Game Theory‡*, Approximation Algorithms‡*, Linear Algebra for TCS‡*, Theory of Computation, Algorithms, Discrete Mathematics, Abstract Algebra, Logic
Other CS	Machine Learning†*, Computer Networks†, Operating Systems, Compilers, Computer Organisation, Computing Tools(lab)
Physics	Quantum Mechanics 1†, Quantum Physics, Thermal Physics‡, Relativity‡
Online courses	Quantum Information Science II†(edX certificate), Quantum Cryptography(edX certificate), Human Evolution(edX certificate), Systematic Program Design(edX certificate)

Skills:

Programming	C, Python, Bash, Octave, Julia, Racket, Verilog, x86 Assembly
Web-Dev	HTML, CSS, Hugo, PHP, SQL
Tools	LaTeX, Git, GNU Plot, Jupyter, Xfig, Wireshark
Languages	Telugu(native), English(fluent), Hindi(fluent)

Course Projects at IIT Kanpur

Spring 2016 **Certified Randomness Generation using Quantum Non-Locality**.
Course Project for CS682(Quantum Computing)
Outline: Studied Quantum Non-Locality and one of it's applications to certified randomness generation. Project Report

Spring 2017 **C Compiler**, *Course project for CS335(Compiler Design)*.
Developed a compiler for a subset of C to x86 assembly using Python & Plex.

Fall 2016 **Extensions for NachOS**, *Course project for CS330(Operating Systems)*.
Implemented some system calls, process scheduling algorithms and page replacement algorithms to extend the functionality of NachOS operating system.

Fall 2015 **Rotating Bridge**, *Course project for TA201(Manufacturing Processes I)*.
Received the 3rd best project award from over 60 groups.

Spring 2016 **Rotobot**, *Course project for TA202(Manufacturing Processes II)*.
Received the 2nd runner up award from over 60 groups.

Selected talks

July 2017 **Communication protocols for tripartite entangled state sharing networks**, LIP6, Université Pierre et Marie Curie, Paris.

Nov 2016 **Quantum Entanglement & Nonlocal games**, SIGTACS, IITK, Slides .

Sept 2016 **Introduction to TCS**, *for freshman students*, ACA, CSE IITK.

June 2016 **Rectangles are Nonnegative Juntas**, *CQT CS Talk*, Singapore.

April 2016 **Is it really random?**, Science CoffeeHouse, IITK.

Jan 2016 **Nature and Certification of Randomness**, ACA, Slides .

Campus Leadership

2016-17 term **Science CoffeeHouse**.

- Organised several student talks on interesting scientific topics.
- Prepared questions for several events and was part of the team which organised a treasure hunt in Takneek, the inter hostel technical competition.

2016-17 term **Association for Computing Activities**.

- Lead the student body of the CSE department and organised several events like informal Faculty-Student interaction sessions, programming competitions and hackathons.
- Allocated senior student mentors to freshmen for guided semester projects.

2016-17 term **Card & Board Games Club**.

Organised several board game meetups and conducted inter hostel competitions in Dominion and Carcassonne.

July 2015 - Oct 2015 **English Literary Events, Antarãgni**.

Organised various literary events as a part of the annual institute cultural festival. There were over 300 student participants from various universities.

Miscellaneous

- Volunteer for FSTTCS 2017
- Sporadic blogger on my site aravindreddy.org
- Attended TQC2017
- Attended Shannon Centenary day celebrations at IIT Kanpur.
- Awarded distinction in initial grade keyboards exam, rock and pop organised by Trinity School of Music, London in December 2015.
- Completed the touch typing course on typing.com.