# Aravind Reddy Talla

*Curriculum Vitae*

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## Education

2014–2018 **B.Tech in Computer Science with minors in Quantum Mechanics**,
*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, *98.0%*(State top one percentile).

2012 **Secondary School**, *Gowtham Concept School*, Hyderabad, *GPA : 9.7/10*.

## 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 selection camp for the Indian team for IPhO 2014.

2014 **All India Rank 189 out of 1.4 million applicants**, *Joint Entrance Examination*.

## Research Internships

Summer 2017 **Paris Centre for Quantum Computing**, *Université Paris Diderot*, Paris.
Mentors: *Prof. Eleni Diamanti and Prof. Iordanis Kerenidis* **Ongoing work*
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. Additionally, I was extremely fortunate to attend TQC 2017 organised by the Quantum Information group at Université Pierre et Marie Curie(where I worked for most of the time while I was in Paris).

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.

## Coursework: (†)Graduate course, (*)Fall 2017

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|---|---|
| Theoretical CS | Quantum Computing†, Modern Cryptology†, Computational Complexity†*, Theory of Computation, Discrete Mathematics, Abstract Algebra, Logic for CS, Data Structures & Algorithms |
| Other CS | Machine Learning†*, Computer Networks*, Operating Systems, Compilers, Computer Organisation |
| Physics | Coherence & Quantum Entanglement†*, Quantum Mechanics 1*, Quantum Physics |
| Humanities | Academic Writing*, Philosophical Aesthetics, Introductory Philosophy, Economics |
| Online courses | Quantum Information Science II†(edX certificate), Quantum Cryptography(edX certificate), Human Evolution(edX certificate), Systematic Program Design(edX certificate) |

## Skills:

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

## Academic Projects at IIT Kanpur

Fall 2016 **Quantum Entanglement & Nonlocal Games**.
Mentor: *Prof. Rajat Mittal*, Dept. of Computer Science and Engineering
Outline: Studied about Nonlocal games and their quantum strategies. Project Report.

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.

## Leadership Experience

2016-17 term **Science CoffeeHouse**, *IIT Kanpur*, Coordinator.

- Organised several student talks on intriguing scientific topics.
- Prepared questions for several events in Takneek, the inter hostel technical competition.
- Organised a treasure hunt as a part of Takneek.

2016-17 term **Association for Computing Activities**, *IIT Kanpur*, Coordinator.

- Lead the student body of the Computer Science department
- Conducting several events like informal Faculty-Student interaction sessions, competitive programming events and hackathons.
- Allocated mentors to freshmen for semester projects guided by senior students.

2016-17 term **Card & Board Games Club**, *IIT Kanpur*, Coordinator.

Organised several campus board games meetups and conducted inter hostel competitions in the games Dominion & Carcassonne.

July 2015 - Oct 2015 **English Literary Events, Antarãgni**, *IIT Kanpur*, Coordinator.

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

## Selected talks

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 .

## Test Scores

December 2016 **GRE General Test**.

332/340(perfect 170 in the quant section)

December 2016 **TOEFL iBT**.

109/120

## Miscellaneous

- Sporadic blogger on my site aravindreddy.org
- Attended the Shannon Centenary day celebrations at IIT Kanpur.
- Secured 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. A five minute typing test in February 2017 gave a result of 61WPM with 94% accuracy.