

# 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. Ioannis 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.

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

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

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## Skills:

Programming	C, Python, Bash, Octave, Julia, Racket, Verilog, x86 Assembly
Web-Dev	HTML, CSS, Hugo, PHP, SQL
Tools	L <sup>A</sup> T <sub>E</sub> X, Git, GNU Plot, Jupyter, Xfig, Wireshark
Languages	Telugu(native), English, Hindi

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## Academic Projects at IIT Kanpur

Fall 2016	<b>Quantum Entanglement &amp; Nonlocal Games.</b> Mentor: <i>Prof. Rajat Mittal</i> , Dept. of Computer Science and Engineering Outline: Studied about Nonlocal games and their quantum strategies. <a href="#">Project Report</a> .
Spring 2016	<b>Certified Randomness Generation using Quantum Non-Locality.</b> Course Project for CS682(Quantum Computing) Outline: Studied Quantum Non-Locality and one of it's applications to certified randomness generation. <a href="#">Project Report</a>
Spring 2017	<b>C Compiler</b> , <i>Course project for CS335(Compiler Design)</i> . Developed a compiler for a subset of C to x86 assembly using Python & Plex.
Fall 2016	<b>Extensions for NachOS</b> , <i>Course project for CS330(Operating Systems)</i> . Implemented some system calls, process scheduling algorithms and page replacement algorithms to extend the functionality of NachOS operating system.
Fall 2015	<b>Rotating Bridge</b> , <i>Course project for TA201(Manufacturing Processes I)</i> . Received the 3rd best project award from over 60 groups.
Spring 2016	<b>Rotobot</b> , <i>Course project for TA202(Manufacturing Processes II)</i> . Received the 2nd runner up award from over 60 groups.

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## Leadership Experience

2016-17 term	<b>Science CoffeeHouse</b> , <i>IIT Kanpur</i> , Coordinator. <ul style="list-style-type: none"><li>○ Organised several student talks on intriguing scientific topics.</li><li>○ Prepared questions for several events in Takneek, the inter hostel technical competition.</li><li>○ Organised a treasure hunt as a part of Takneek.</li></ul>
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- 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 - **English Literary Events, Antarāgni, IIT Kanpur**, Coordinator.
- Oct 2015 Organised various literary events as a part of the annual institute cultural festival. There were over 300 participants from colleges across the country.

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## 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](#) .

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## Test Scores

- December **GRE General Test**.
- 2016 332/340(perfect 170 in the quant section)
- December **TOEFL iBT**.
- 2016 109/120

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## Miscellaneous

- Sporadic blogger on my site [aravindreddy.org](http://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](http://typing.com). A five minute typing test in February 2017 gave a result of 61WPM with 94% accuracy.