Aravind Reddy Talla

Curriculum Vitae

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Education

2023 (Expected)	**Northwestern University**, *Evanston, Illinois*, Ph.D, Computer Science.
2018	**Indian Institute of Technology(IIT) Kanpur**, B.Tech, Computer Science & Engineering(minor in Physics), Distinction.

Internship Experience

Summer 2017	**Paris Centre for Quantum Computing**, *Université Paris Diderot*. Mentors: *Prof. Eleni Diamanti and Prof. Iordanis Kerenidis* Partly funded by Charpak
Summer 2016	**Centre for Quantum Technologies**, *National University of Singapore*. Mentor: *Prof. Hartmut Klauck*
June & December 2015	**Indian Institute of Science Education and Research**, *Kolkata*. Mentor: *Prof. Prasanta K. Panigrahi* Funded by the NIUS Scholarship

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.
2014	**Ranked 189 out of 120 thousand applicants**, *JEE Advanced*.
2014	**Ranked 206 out of 1.4 million applicants**, *JEE Main*.

Teaching Experience

Jan - April 2018	**Tutor for ESC101: Fundamentals of Computing**, *IIT Kanpur*, Took weekly tutorials and set up some of the course exams.

Selected Coursework: ^{(†)} Ongoing

CS Theory   Approximation Algorithms, Computational Complexity, Cryptography, Linear Programming & Spectral Graph Theory, Mechanism Design†, Quantum Computing

Other   Probability Theory & Stochastic Analysis†, Machine Learning,
Quantum Mechanics, Thermal Physics, Special Relativity, Languages of South Asia,
Philosophical Aesthetics

edX courses   Quantum Cryptography(edX certificate), Human Evolution(edX certificate),
Quantum Information Science II(edX certificate)

Course 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. 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. Report

Spring 2017   **Breaking Cryptosystems**, *Modern Cryptology by Prof. Manindra Agrawal*.
The 'assignment' in this course was a text adventure game which involved breaking various ciphers to clear a particular level. Over the course of the semester, we broke:
○ Substitution cipher ○ Block substitution cipher ○ Substitution-Permutation cipher
○ DES (with differential cryptanalysis) ○ SASAS (AES like attack) cipher
○ RSA (with low public exponent, using Coppersmith's LLL based attack) ○ A hash function

Fall 2017   **Handwritten Mathematical Expression Recognition**, *Machine Learning*.
Developed a tool which uses a CNN to convert an image of a handwritten mathematical expression to it's corresponding LaTeX code. Slides, 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.

Skills:

Programming   C/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)

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**.
- Led 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 hall(student residence) competitions in Dominion and Carcassonne.

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

- Attended TQC2017, LIP6, UPMC

- Attended Shannon Centenary celebrations, IIT Kanpur.

- Awarded distinction in initial grade keyboards exam, rock and pop organised by Trinity School of Music, London in December 2015.