Aravind Reddy Talla

Curriculum Vitae

✉ *arareddy@u.northwestern.edu*
🖎 *aravindreddy.org*

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

Winter 2019	**Teaching Assistant**, *EECS 336: Design & Analysis of Algorithms, Northwestern*, Held office hours, graded homework assignments, and held few of the weekly sections.
Jan - April 2018	**Tutor**, *ESC101: Fundamentals of Computing, IIT Kanpur*, Held weekly tutorials, set up exam questions, reviewed exam questions prepared by other tutors, graded exams, typeset the major exams, supervised a few programming lab sessions, and invigilated exams.

Selected Coursework: (†) Ongoing

Computer Science	Approximation Algorithms, Computational Complexity, Computational Learning Theory†, Cryptography, Linear Programming & Spectral Graph Theory, Machine Learning, Mechanism Design, Quantum Computing
Other	Probability Theory & Stochastic Analysis, Quantum Mechanics, Thermal Physics, Special Relativity, Languages of South Asia, Philosophical Aesthetics
edX courses	Human Evolution(edX certificate), Quantum Cryptography(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

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.