

# SAHIL AGARWAL

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## EDUCATION

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University of California San Diego	M.S. Computer Science	2017 (expected)
IIT Bombay	B.Tech, M.Tech Electrical Engineering	2015

## INTERNSHIP EXPERIENCE

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- VLSI CAD Lab, University of California San Diego** May 2013 - July 2013  
*Research Advisor- Prof Andrew Kahng* Language: C++; Tool(s): CPLEX
- Performed **worst-case analyses of zero-skew clock trees** (ZSTs) in VLSI Circuits
  - Explored and compared the upper bound of ZSTs and other functionals of a geometric point sets
  - Showed ZSTs exhibit different growth rates compared to functionals of geometric point sets like Steiner trees.

## KEY PROJECTS

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- Desktop Application for Encrypting Google Drive files** Fall 2015  
*Course: Modern Cryptography* Language: Python; Libraries: PyQt4, PyCrypto
- Developed an application that ensures privacy and integrity of the user's data on the cloud.
  - Encryption/Decryption was done using AES block cipher in CTR mode. HMAC was used for authentication.
- Implementation of a Parallel SAT Solver** July 2014 - June 2014  
*Master's Thesis* Language: C++; Tool(s): GNU Parallel
- Developed parallel algorithm using decomposition based technique based on MiniSat 2.2
  - Obtained comparable performance to modern parallel solvers for unsatisfiable instances
- Fall Detector and Perimeter Monitoring Unit** Spring 2013  
*Electronics Design Lab* Language: C
- Developed a cheap, wearable prototype to detect and report if wearer suffers a fall or exits a safe perimeter
  - Implemented using PIC micro-controller, GSM module, GPS module, accelerometer along with a user display
  - Received the Akshay Dhoke Memorial Award for prototype developed

## TEACHING, LEADERSHIP EXPERIENCE

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- Teaching Assistant at UCSD** January 2016-  
*Leading discussion section, holding office hours, creating and grading exams and assignments*
- Discrete Mathematics (CSE 21) - ongoing
  - Introduction to Artificial Intelligence (CSE 150) - Summer 2016
  - Design and Analysis of Algorithms (CSE 101) - Winter 2016 and Spring 2016
- Tutor in Practical English Training Program** Fall 2013
- Part of a 7 member team to improve practical English knowledge in freshmen weak in the language
  - Organized the curriculum of 30 hours of classes; tutored a class of 20 students
- Institute Student Mentor** April 2014 - April 2015
- Mentoring 12 freshmen; providing guidance in achieving personal, social and academic goals
  - Active in dissemination of information through the Freshmen Forum and Practical English Training Program

## RELEVANT COURSES

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Advanced Algorithms, AI: Probabilistic Reasoning & Learning, Machine Learning, Programming Languages, Operating Systems, Cryptography, Probability & Random Processes, Graph Theory, Optimization

## TECHNICAL STRENGTHS

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Programming Languages	C, C++, Python, Haskell, Java, MATLAB
Hardware description	Verilog HDL, VHDL, Bluespec System Verilog

## SCHOLASTIC ACHIEVEMENTS

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- Obtained All India Rank of 176 in IIT-Joint Entrance Exam out of 450,000 students (2010)
- One among 35 out of over 35,000 participants selected for Orientation cum Selection Camp for the International Physics Olympiad (2010)