

Employment

Synopsys Inc, India - Senior R&D Engineer I

July 2013 - August 2018

- Have worked on industry standard logic synthesis tools that are used as an intermediary for emulation and static verification of hardware designs
- Designed a Memory profiler to record and determine dynamic memory being used by IR object model during synthesis
- Worked on complete overhaul of expression and sign handling in synthesis engine which included adding/fixing support for all arithmetic and logic operators in Verilog/System Verilog and VHDL
- Worked on adding Multi-threaded Synthesis support for parallel compilation of Verilog/System Verilog modules
- Have worked on complex areas like Loop Unrolling, Register Inference, Set-Reset detection, and Clock Gating

Siemens, India - Research Intern

January 2012 - April 2012

- Worked on the development of an in-house solution for cable sizing for EPC projects. Tool based on Excel-VBA and used exhaustive algorithms for optimisation of results
- The project adhered to the three major standards IEC, NEC and the Indian Standard

Education

University of Wisconsin - Madison - Master of Science in Computer Sciences

Fall 2018 - Dec 2019 (Expected)

Punjab Engineering College - Bachelor of Engineering in Electrical Engineering

Fall 2009 - Spring 2013

Open Source Projects

- **kartikanand.com** I maintain a technical blog at <https://www.kartikanand.com/> where I frequently discuss topics related to web and command line applications. The website is created using Jekyll and hosted on Github pages
- **Outing Box** I created this website from scratch employing Django framework at the backend, and a mixture of JavaScript and Bootstrap to drive the frontend. The website is currently hosted on Heroku PAAS
- **msh** A replicate terminal shell created in pure C
- **Python Imgur downloader** A Python package to download whole Imgur albums asynchronously on the CLI
- **MiniMax** A Tic Tac Toe bot which never loses. Implemented the MiniMax algorithm for computing efficient game trees for a two- player zero-sum game
- **Wikilooper** Worked on a web application which shows that all of the human knowledge transcends from Philosophy; The website uses Flask and BeautifulSoup in the backend and plain simple JavaScript frontend
- **BFK Interpreter** An interpreter for the BFK programming language created using Python and C++
- **Eat Out** A web app to search for random restaurants around you; Made with Express/Node at the backend and React in frontend.
- **Game of Life** Conway's Game of Life implemented using React framework
- **Chrome Bookmarks Analyzer** A Chrome extension to get various statistics on your bookmarks

Awards & Honors

- **Synopsys Spark Award (2017)** Awarded for all-round performance in solving issues for multiple flows - protocompiler, NextGen Lint, ZeBu/Simon and helped going past tough situations
- **Synopsys Spark Award (2017)** Awarded for solving a complex BDD performance issue with Clock Gating
- **Synopsys Spark Award (2016)** Awarded for delivering Multi-threaded synthesis beta release in record time
- **Kudos Award (2015)** Awarded for creation of NOM Memory Profiler which led to several memory optimisations across critical customer designs
- **Kudos Award (2014)** Awarded for complete ownership of Git version control system for synthesis team
- **Winner of Semantica Programming Contest (2011)** Annual Technical Fest of Punjab Engineering College
- **Winner of LCD Programming Contest (2010)** Annual Technical Fest of Punjab Engineering College
- **National Cyber Olympiad Award (2009)** Percentile 99.9%
- **Informatics Olympiad Award (2007)** Percentile 99.9%

Extra Curricular Activities

- **Member of Voyagers (2010 - 2013)** A non-profit organisation registered with Chandigarh Administration. President in junior year
- **Member of Robotics Society (2010 - 2013)** Involved in organising talks and club discussions on technology, robotics, and computer science
- **Member of National Service Scheme (2009 - 2013)** Student volunteer at National Service Scheme. Involved in organising annual blood donation camps and street plays for spreading awareness on social issues

Languages & Technologies

- C++; C; Python; JavaScript
- HTML/CSS; ReactJs; Django; NodeJs; ExpressJs; jQuery; Heroku
- Vim; GDB; Valgrind; PDB; Linux; MacOS