Scholastic Achievements

- Pursuing **honors** in Computer Science and Engineering
- **All India Rank 53** in IIT-JEE 2011 among 4.5 lakh candidates
- **All India Rank 51** in AIEEE 2011 among over 10 lakh candidates
- **All India Rank 7** in VITEEE 2011 (for admissions to **Vellore Institute of Technology**)
- **All India Rank 130** in the 2011 entrance exam for the **Indian Insitute of Space Technology**
- Qualified for the **Indian National Physics Olympiad, 2010**
- Qualified for the **Indian National Mathematics Olympiad, 2011** (secured **rank 64** in the RMO)
- **All India Rank 1** in the 7^{th} **National Cyber Olympiad (2005)** conducted by Science Olympiad Foundation

Internship Projects

- **Software Development Intern at Samsung Electronics, Korea** *Summer 2014*
  - **Open source contributions**

– Understood the **Chromium graphics stack** and patched Chromium's C++ 2D drawing library **Skia**

  - **Game development - Dodgebomb**

– Developed a **WebGL** browser game using **three.js** that uses the W3C-standardized **Gamepad API**
– Game runs as a webapp on **SBrowser** and **Chrome**. Controls are via the **Samsung Wireless Gamepad**
– Will port to Tizen App Store (*ongoing*)

- **Software Development Intern at Chronus Software, India** *Summer 2013*
  - **SSH Key Management**

– Developed a CLI app in **Ruby** for privileged users (admins, ops team) to efficiently provision, rotate and revoke SSH key permissions for **AWS EC2** instances, using **AWS S3** as the keystore

  - **RTalk** [github.com/wenderen/rtalk]

– Anonymized chat app in **Rails** with emoticons, clickable links and an option to export chat history as a text file
– Users create chat rooms and invite friends by sharing a randomized room URL
– Room and chat logs are destroyed when everyone leaves

Other Programming Projects

- **Scrobbet** [github.com/wenderen/scrobbet] (*ongoing*) *August 2014*

– Building a CLI/GUI app to send track metadata to **Last.fm**, a social-network/artist-database for music listeners

- **Time Glider** [Hackathon] [github.com/wenderen/timeline-builder] *August 2013*

– Website that displays an interactive timeline of news articles related to a user's search term
– Performed natural language processing in **Python NLTK** to summarize news articles. News article scraping and search indexing done in **Python** and **Apache Solr**. Frontend and interfacing done in **Sinatra**
– Winner of the **second prize** at the **Yahoo! HackU 2013 IIT Bombay** event

- **Train Tracker** [Hackathon] [github.com/wenderen/train-tracker] *July 2013*

– Built a website that accepts a PNR number and returns **real-time** data about the upcoming train station (distance, time left, weather forecast, emergency numbers) to train travellers
– Winner of the **Best Technical Hack** award at the **Yahoo! Hack India 2013 Hyderabad** event
– Code written in **Ruby** using **Sinatra** as the framework.

Research Experience

- **Simulating Burning - Undergraduate Dissertation** (*ongoing*) *Prof P Chaudhuri, Autumn 2014*

– Physically modeling fire and incorporating burning, melting and residue formation for generic solid meshes
– Burning modeled using an augmented version of the Material Point Method for solid/fluid simulation
– Flame modeled using Navier-Stokes equation for fluid simulation
– Using **tetgen** for DeLaunay mesh tetrahedralization, **shader-based OpenGL** for rapid mesh visualization, **mantaflow** as a fluid simulation solver, and **PhotoRealistic RenderMan** as an offline raytracer renderer

- **Bounding error-correcting codes** (*ongoing*) *Prof A Kulkarni, Autumn 2014*

– Deriving information-theoretic bounds on the cardinality of error-correcting codes for strings sent over permuting channels (tentative, topic may change)

Teaching Experience

• **Web and Coding Club, IIT Bombay** *January 2013, January 2014*
– Conducted two very well-received and popular **Python programming workshops** for beginners
• **Teaching Assistant, Computer Graphics course** (*ongoing*) *Autumn 2014*
– Developing teaching material for the course
– Guiding students and helping them resolve their difficulties with the course

Course Projects

• **Rendering with PRman** [wenderen.github.io/renderman/] *Profs P Chaudhuri & S Chandran, Spring 2014*
– Wrote shaders and rendered raytraced scenes using Pixar's rendering software **Photorealistic RenderMan**
• **Musicbox Animation** [github.com/wenderen/musicbox] *Prof P Chaudhuri, Autumn 2013*
– Modeled, textured, posed and animated a dancer in a musicbox. Built from scratch with **OpenGL**
• **MS Paint clone** [github.com/wenderen/mydraw] *Prof P Chaudhuri, Autumn 2013*
– Basic MS Paint clone made with OpenGL with support for floodfill tool and checkered patterns
• **Elliptic Curve Cryptography Primitives** [github.com/wenderen/ecc-asm] *Prof B Menezes, Autumn 2013*
– Implemented primitives for elliptic curve cryptography in MIPS Assembly
• **Service Bazaar** [github.com/wenderen/service-bazaar] *Prof U Bellur, Autumn 2013*
– Built an Amazon/eBay/craigslist clone tailored towards services. Written using Rails
• **Fast Fourier Transform on FPGA** *Prof A Gumasthe, Spring 2013*
– Implemented eight-point radix-2 Decimation in Frequency FFT on Atlys Spartan 6 FPGA using VHDL
• **Rube Goldberg Machine Simulator** *Prof P Chaudhuri, Spring 2013*
– Simulated a Rube Goldberg Machine in C++ using Box2D physics engine and OpenGL for rendering
• **FMoT: File Manager on Terminal** *Prof V Apte, Fall 2012*
– Wrote a terminal-based file manager in C++ for Unix Systems supporting standard file management tasks
• **Chinese Checkers** [github.com/wenderen/chinese-checkers] *Prof A Sanyal, Spring 2012*
– Implemented heuristic game AIs for Chinese Checkers (Minimax and Alpha-beta pruning) with a GUI using Racket

Programming and Technical Skills

• **Knowledgeable about** C, C++, OpenGL, WebGL, JavaScript, Ruby, Rails, Python
• **Basic familiarity with** SQL, Prolog, Lua, Photorealistic Renderman, Amazon AWS (S3, IAM), J

Areas of Interest

• **CS:** Graphics, Web Development, Functional Programming, Parallel Computing
• **Others:** Information Theory, Game Development

Key Courses Undertaken

CS: Digital Image Processing[2], Parallelizing Compilers[2], Parallel Computation[2], Advanced Computer Graphics, Computer Graphics, Program Derivation
Others: Linear and Nonlinear Systems, Signals and Feedback Systems, Mathematical Structures for SysCon, Data Analysis & Interpretation
[1]*With associated lab course* [2]*Ongoing*

Extra-curricular Activities

• Passionate about foreign languages
– Competent in **French** (studied as a second language for 7 years at the school level)
– Completed one year courses in **German** (certified by **DAAD**) and **Chinese** (certified by **Beijing Jiaotong University**)
• Built a self-controlled **wall-following robot** in a team of 3 for the WALL-E competition in **Techfest 2012**, which was selected among the top-32 teams, as well as a remote-controlled **racing robot** in a team of 3 for **Trackmania 2012**, which navigated an obstacle course
• Completed one year of **National Service Scheme** (2011-2012). Performed **shramdaan** in rural areas of Maharashtra, visited NGOs and assisted in the building of a **tubewell**
• **Debating:** participated in and reached the finals of Sardar Patel Institute of Technology, Mumbai's debate competition in SPACE (annual cultural festival) 2012