

# Ravi Shankar

☎ +91 9551208590 • ✉ wafflespeanut@gmail.com • 🍪 wafflespeanut

## Education

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<b>10th grade</b> 440/500 (91%)	<b>2009 – 2010</b> <i>Ponjesly Public Matriculation School</i>
<b>12th grade</b> 1131/1200 (94.25%)	<b>2011 – 2012</b> <i>DVD Higher Secondary School</i>
<b>Bachelors Degree - Aeronautics</b> CGPA: 6.23	<b>2012 – 2016</b> <i>Madras Institute of Technology</i>

## Projects

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<b>Aircraft Design Project</b> <i>Prof. Jayaraman</i>	<b>December, 2014 – 2015</b> <i>Madras Institute of Technology</i>
<ul style="list-style-type: none"><li>Studied and calculated the various parameters required for designing a 420-seater "jumbo jet" aircraft.</li><li>Wrote a number of Python scripts for automating the data collection and plotting, which reduced a great deal of time for the fellow undergrads.</li></ul>	
<b>Residual Strength Estimation of Stiffened Composites</b> <i>Prof. Arumugam</i>	<b>January, 2016 – April, 2016</b> <i>Madras Institute of Technology</i>
<ul style="list-style-type: none"><li>Fabricated a number of ordinary and stiffened composite laminates using the hand lay-up method.</li><li>Conducted various tensile, compressive and acoustic tests on those laminates and studied about their strength and failure modes, especially how they behave in the presence of a hole.</li></ul>	
<b>Backend Developer Intern</b> <i>Giriraj Namachivayam (Team Lead)</i>	<b>January, 2016 – May, 2016</b> <i>Genome Life Sciences</i>
<ul style="list-style-type: none"><li>Introduced the Rust language to the team, and rewrote a number of Bash and Python scripts in Rust, which showed a drastic improvement in performance.</li><li>Wrote a few utilities (FastQ+, Varchek+, MapQ+) in Rust for parallel processing of large quantities of chromosome and DNA sequence data.</li></ul>	

## Experience:

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<b>Junior Bioinformatics Programmer</b> <i>Giriraj Namachivayam (Team Lead)</i>	<b>June, 2016 – Present</b> <i>Genome Life Sciences</i>
<ul style="list-style-type: none"><li>Wrote an utility which collects known species data from various references and tries to predict the species from the given DNA sequence in <math>O(1)</math> time or <math>O(\log-n)</math> time depending on the space-time tradeoff.</li><li>Wrote a few more utilities for validation and analysis of biological data.</li><li>Only fresher to earn the "Game changer" award for Q1 and Q2.</li></ul>	

## Programming skills

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**Languages:** Python, Rust, Bash, HTML5, Javascript, CSS, and some  $\text{\LaTeX}$

**Technologies:** Git

## Open source contributions

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- Mozilla.....
- Contributor and reviewer for the [Servo browser engine](#) project over the last few months, primarily concentrating on the python code used by the build system and mentoring the newcomers.
    - Wrote a [compiler plugin](#) for checking sorted order of declaration statements.
    - Wrote various handlers for [highfive](#) (a bot which uses the Github webhooks API to welcome newcomers, assign/tag issues, post the build failures, etc.) and a ["mark and sweep" JSON cleaner](#) for the tests.
  - Occasional contributor to the [Rust programming language](#), its documentation and related tooling.
  - [Mozillian](#) since the summer of 2015.

- Personal projects.....
- [Catalog](#): A "file-backed" map for maintaining key/value pairs in a file (sorted with respect to their hashes), which uses binary search and file seeking to "get" the value for the given key in  $O(\log-n)$  time, which is always in the range of a millisecond.
  - [Biographer](#): A command-line based private diary written in Python, which allows users to write their everyday stories, view them, or search through them later. It makes use of a simple shifting cipher to encrypt/decrypt the contents. It also contains a Rust library, which uses FFI and parallelization to reduce the searching time by a factor of  $\approx 100$ .
  - [Free fall](#): A terminal based 2D ASCII game written in Rust, where the users try to save a jumper from hitting the cliffs. The game makes use of the terminal's raw mode and interacts with the Unix C libraries for polling the keystroke inputs and prints thousands of characters frame by frame to indicate motion.
  - [Flight '16](#): A [responsive website](#) written in pure HTML/JS/CSS (for our dept. symposium) without the use of any external libraries. Since most of the audience were 2G users, it's optimized in such a way that the desktop version consumes atmost 5 MB, and the mobile version consumes barely 1.5 MB, which brings the loading time to a few hundred milliseconds.

## Miscellaneous

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- Conducted introductory hands-on sessions for Python in college
- Blogger for two years on [wafflescrazypeanut.wordpress.com](#) and [wafflespeanut.github.io](#)
- I also play the Indian flute, try to compose music, and juggle when I'm AFK.