

# VIBHOR KUMAR

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## EDUCATION

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**California Institute of Technology [Caltech]**, *Computer Science, 3.9 GPA*

*Class of 2016*

- CG Research for Credit (CS 81), Computer Graphics (CS 171), GPU Programming (CS 179), Computer Graphics Research Project class (CS 174), Introduction to Computer Graphics Research (CS 176) Discrete Differential Geometry (CS 177), Machine Learning (CS 156ab), Data Structures and Algorithms (CS 38), Decidability and Tractability (CS 21), Introduction to Computing Systems (CS 24)

## WORK AND EXPERIENCE

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**Samsung Mobile R&D**, *Software Engineering Intern*

*July 2013 - September 2013*

- Developed testing suites for enterprise security applications and their derivatives by working with Android testing tools and bash/python scripting for full automation.
- Directly involved in the development process as well by creating and optimizing apps that provide a UI interface to testing suites.
- Worked alongside my team by handling automation and development, and created test cases for various parts of the overall testing suite.
- Fixed errors with testing tools, involving careful manipulation of the Android source code, while additionally ensuring compatibility with Samsung's current and future internal modifications.

**ChoiceFork**, *Researcher*

*April 2013 - June 2013*

- Building up from scratch the logistics of improving decision making on the internet as the sole researcher and developer. Ideas were centered around Natural Language Processing.

**Vora Labs**, *Testing and Software Development*

*Summer 2012*

- Created unit tests with JUnit for all parts of the development on the backend, while additionally developing various backend and frontend tasks as needed.
- Worked on API implementations for efficient product and search recommendations.

**Computer Science Student Faculty Committee (CSSFC)**, *Student Rep*

*2012-2013 (Present)*

- Working with other representatives and the CS faculty to respond to the change in core classes for next year and institute new, revised CS degree requirements.

## SELECTED RESEARCH PROJECTS

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**Edge-Preserving Linear-Time Smoothing Optimization**, *CS174 Research*

*March 2013 - June 2013*

- Optimizing an edge-preserving linear-time smoothing filter algorithm (Gastal, Oliveira; SIGGRAPH 2011), and implementing both a CPU and GPU version with novel improvements.

**Automated Inbetweening between Noisy Keyframes**, *CS81 Research*

*Dec. 2012 - March 2013*

- Using ideas from both Computer Graphics and Applied Math to develop a generalized method that solves the research problem and is faithful to the artist's intent.

**Beal's Conjecture and Distributed Computing**

*Spring 2012 - Present*

- Developing a parallelizable algorithm for efficiently checking larger values for the variables in Beal's Conjecture, an unsolved generalization of Fermat's Last Theorem.

## SKILLS AND AWARDS

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- **Skills:** C/C++, Java, Python, OpenGL, JOGL and PyOpenGL, CUDA, GLSL, Android (Eclipse/ADT), Bash Scripting, L<sup>A</sup>T<sub>E</sub>X, Markdown, ANTLR, Mathematica, R, Octave, SVN, Git and Github ( **see above** )
- **Awards:** Marion Gene Vincenti Scholarship (Caltech Scholarship, *Spring 2013*), Frances and Howard Vesper Scholarship (Caltech Scholarship, *Spring 2013*), 1st place Google Games Coding Competition (*Spring 2013*), 11th Place Regional ACM Collegiate Programming Contest ( *Winter 2012*), Association for Computing Machinery Membership, (*Spring 2013*), Top 5 in Silver Division on USA Computing Olympiad US Open Contest (*Spring 2012*), Honda-OSU Math Medal (*Spring 2012*), 1st Place American Computer Science League Contest (*Spring 2012*).