

# Ulysse Carion

## Curriculum Vitæ

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📄 [ulyssecarion.com](http://ulyssecarion.com)

Github: <https://github.com/ulyssecarion>



## Education

2010–Present **La Jolla High School**, *Unweighted GPA – 4.0 (4.68 weighted)*.

## Experience

### Internships

2013 **Summer Intern**, RCSB PROTEIN DATA BANK, University of California, San Diego.

Designed and implemented a search tool that, given a user's drawing of a protein-drug interaction, will find all instances of the user's drawing in any of the 90,000+ structures in the Protein Data Bank.

In addition, I contributed to Biojava, a bioinformatics library. I added support for chemical bonds to Biojava, and extended the file parsers for the PDB and MmCIF file formats.

2012 **Summer Intern**, SAN DIEGO SUPERCOMPUTER CENTER, University of California, San Diego.

Gathered data from the Immune Epitope Database (IEDB) to identify and display information on epitopes, antigens, antibodies, MHC molecules, and T-cell receptors at different levels of sequence homology.

2011 **Summer intern**, SAILOR RESEARCH GROUP, University of California, San Diego. Gathered diffraction grating data for a research project.

Detailed achievements:

- Data collected is now in a published paper in *Advanced Optical Materials: Topological control of porous silicon photonic crystals by microcontact printing* (available online at: [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)2195-1071](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)2195-1071)).
- Worked with non-English-speaking student from France.

### Miscellaneous

2011–Present **Math Tutor**.

Tutored high school students taking math classes ranging from geometry to pre-calculus.

## Awards

2013 Honorable Mention – California State Science Fair

2013 1<sup>st</sup> Award – Greater San Diego Science & Engineering Fair

2013 Finalist – 2013 San Diego Mayor's Cyber Cup Challenge

2011 1<sup>st</sup> Place – San Diego Science Alliance "Green Skills For Life" Video Competition

## Computer skills

Basic	PHP, Lua, YACC, OpenGL / WebGL
Intermediate	HTML / CSS, Ruby on Rails, C, Git, JavaScript
Advanced	Java, Ruby

## Projects

### 2013 WebGL Audio-Visual Demonstration.

*The Musical Turk* is a Javascript-based WebGL experiment. It uses three.js and midi.js for visual and auditory output. Inspired by Animusic's *Pipe Dream*, the program shows a 3D cannon that fires marbles that land onto a xylophone in sync with music. The program also features very effective and dynamic techniques at handling lag due to processing time for rendering or music-playing.

Run it in your browser: (Chrome only)  
<http://ulysssecarion.github.io/turk>  
Source and more info available at:  
<https://github.com/ulysssecarion/turk>

### 2012 Mutable Programming Language.

Created a programming language called "Interlingua" where the keywords (i.e. if, while, etc.) are user-defined. This could allow the user to very quickly create languages that naturally read like their native tongue. The language features object-orientation, method overriding, and monkey patching.

Source and more info available at:  
<https://github.com/ulysssecarion/interlingua>

### 2012 Chess-Playing Computer Program.

Program plays chess at a very high level of skill. Capable of looping through millions of positions per second, it can defeat around 99.89% of chess players. Also has an online counterpart made with Selenium Webdriver that can play on its own on chess.com.

Was the subject of a science fair project: *Creating a Chess-Playing Computer Program*.

Source and more info available at:  
<https://github.com/ulysssecarion/godot>

## Testing

SAT	2280 (Math: 760, Reading: 760, Writing: 760)
SAT II	Physics: 800
	Math II: 800

	AP Course	Score		AP Course	Score		AP Course	Score
AP	Physics (Mechanics)	5		European History	5		US History	5
	Computer Science	5		Calculus (AB)	5		Biology	5
	English Composition	5		Calculus (BC)	5		French	5