

# Jake Van Alstyne

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## BRIEF SUMMARY

Software Developer / Programmer / Engineer  
Web, iOS, Mac OS X, 3D Graphics, Visualization  
C, C++, Obj-C  
HTML, CSS, PHP, MySQL  
CLI, Emacs, Git, Apache

## EDUCATION

- Master of Science - Computing 2013
  - University of Utah
  - Graphics and Visualization
  - Improvements to rational surface analysis in toroidal magnetic confinement fields
- Bachelor of Science - Chemical Engineering 2008
  - University of Utah

## EMPLOYMENT

### Independent & Freelance iOS / Mac OS X / Web developer

5/2008-  
Present

- Freelance developer for hire. I've built dozens of custom iOS and Mac OS X applications for clients.
- [www.UnitsOfCode.com](http://www.UnitsOfCode.com) - A web app I built for storing and sharing code snippets online
- PictureThis! - A free iOS App I created using StoreKit. It connects to a private server to sell and distribute packages of scenic photographs from around the world.
- OnCue - A free and open-source Mac OS X app I created which allows the user to control their iSight camera with timers, as well as by detecting motion in the room. I developed this feature using shaders in CoreGraphics.
- Visit [EggDevil.com](http://EggDevil.com) for links to the App Store
- Full product development from concept to deployment on App Store
- Objective-C, Cocoa, Cocoa-touch, UIKit, CoreData, StoreKit, QTKit, GameKit, CoreVideo, OpenGL, OpenGL-ES, Cocos-2D, etc

### OpCode LLC - iPhone developer

5/2008-  
8/2008

- [CarSplosion](#)
- I developed the visual gimmicks for this mini-game using Cocos2D and chipmunk-physics.

## **Software Engineer, K'nowbe Works, LLC, West Valley, Utah**

4/2012-  
12/2012

- Main product development, C++, Windows API, MFC, COM, OpenGL, OSG & GLSL
- I have produced a set of visually striking 3D interactive industrial design tools as plugins to a proprietary 3D graphics engine in Windows 7 that is generating millions of dollars of profit for K'nowbe. The tools I've developed include, among other advanced techniques & algorithms, bidirectional A\* heuristic path finding, gaussian smoothing, image processing, large point cloud rendering, ray tracing, GPU shaders, and a fine GUI polish.
- In addition to developing tools that are in and of themselves sellable products, I help maintain existing code, find and fix bugs, manage the build and revision control, as well as contribute knowledge and experience.
- Agile development team using TFS as our revision control and a custom in house testing suite for unit tests and TDD.

## **Software Engineer, Flexsim Simulation Products, Orem, Utah**

11/2011-  
3/2012

- Main product development, C++ and custom engine scripting (FlexScript)
- I was on the main product development team, tasked with maintaining and upgrading the code. I was asked to make a series of sweeping improvements to FlexSim's Windows MFC GUI. Additionally, I created a suite of performance and unit tests for the FlexSim code base. I maintained the code in their mercurial repository and generally improved various components.

## **Software Engineer, Software Development Center, University of Utah**

6/2010-  
9/2010

- Custom web portal development
- Using JQuery, HTML, and CSS, I developed a user interface where clients could manage their accounts and set up layouts for their software.

## **Research Assistant, University of Stuttgart Institut für Verfahrenstechnik und Dampfkesselwesen (Institute for Pro- cess Engineering and Power Plant Technology)**

8/2007-  
1/2008

- Student Research Exchange
- I worked with graduate students to progress their research. I did various lab work and worked with typical industrial lab equipment.

## **Undergraduate Research Assistant, University of Utah**

10/2006-  
12/2008

- High temperature fixed bed mercury sequestration research on a non-carbonaceous substrate.
- I researched mercury sequestration on a novel non-carbonaceous mineral sorbent. My results showed promise for the material, and I was invited to present a poster at the undergraduate student competition in San Francisco at the AIChE convention in 2007.

## DEVELOPMENT SKILLS

### Programming

- Object Oriented Design / Architecture
- C, C++, Obj-C
- Java
- C#
- Python
- HTML, CSS, JavaScript, JQuery
- OpenGL, GLSL
- Ruby on Rails
- PHP
- MySQL, SQLite
- Additional skills:
  - Scientific Computing & Visualization
  - Numerical Techniques
  - Cocoa, Cocoa-touch, Windows API, MFC, COM, SQL, PHP, bash, zsh, AppleScript, LATEX, MATLAB, Blender, Git, SVN, Agile, Unit Testing, JUnit

## TEACHING

### University of Utah, Salt Lake City, Utah USA

- Graduate Instructor 2011
  - CS 1400 - Introduction to Computer Science
- Teaching Assistant
  - CS 3810 - Computer Organization
  - CS 2420 - Computer Science II 2010
  - CS 2420 - Computer Science II EAE (Engineering Arts and Entertainment Track)
  - CS 1410 - Computer Science I EAE (Engineering Arts and Entertainment Track)

## RESEARCH

- Exploration of the Material Point Method on Adaptively Refined Meshes with Hanging Nodes 2011
- Rational Surface Extraction in Toroidal Magnetic Field Simulations 2008
- High Temperature Fixed Bed Mercury Sequestration on a Non-Carbonaceous Substrate

## HONORS

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| • Red Hanger Scholarship                                     | 2007 |
| • John Zink Award  | 2006 |
| • Chemical Engineering Departmental Full Tuition Scholarship | 2001 |
| • University Honors at Entrance Scholarship                  |      |