

# JAKE VAN ALSTYNE

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## SUMMARY

Software Developer

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iOS, OS X, Web

Interactive 3D Graphics & Data Visualization Specialist

Objective-C, Swift, C, C++

## EDUCATION

M.SC. - COMPUTING - UNIVERSITY OF UTAH

2013

- Graphics and Visualization
- Improvements to rational surface analysis in toroidal magnetic confinement fields

B.SC. - CHEMICAL ENGINEERING - UNIVERSITY OF UTAH

2008

- Dean's List
- High Temperature Fixed Bed Mercury Sequestration on a Non-Carbonaceous Substrate

## RECENT PROJECTS

SELFIE FOR IPHONE APP

5/2014-  
Current

- An innovative social networking app for face to face conversations

ONCUE MAC OS X APP AND IOS COMPANION APP

10/2011-  
Current

- Motion detection and remote video streaming
- GLSL, GPUImage

OURPLAN IPAD APP

9/2013-  
4/2015

- Construction scheduling application
- Multiple Core Data stores, remote synchronization
- Custom Calendar UI / UX design / implementation

LACROSSE STATS

11/2013-  
2/2014

- Sports statistics application
- Core Data, Remote data retrieval, Premium features via In App Purchase
- Custom UI / UX design / implementation

## IZON IPAD / IPHONE APP

5/2013-  
9/2013

- Remote video streaming application
- Core Data, P2P / Proxy Streaming
- Custom UI / UX design / implementation

## EMPLOYMENT

### SENIOR IOS DEVELOPER, SELFIE INC.

5/2014-  
Current

- Core iOS app development. Bug fixes, feature enhancements, etc.

### IOS CONSULTANT, USANA

3/2014-  
4/2014

- Improved enterprise reporting modules in internal iOS application, created a custom tree based reporting view
- Short term contract position

### IOS CONSULTANT, NTT DATA

9/2013-  
1/2014

- App development and maintenance
- Feature enhancements, bug fixes, repository / App Store management

### IOS DEVELOPER, STEM INNOVATION, SALT LAKE CITY, UTAH

5/2013-  
9/2013

- IZON iOS App Architecture
- Objective-C main app, C and C++ core modules
- Asynchronous RESTful web-service interaction
- Local/remote viewing
- Live multiple-source data streams

### INDEPENDENT & FREELANCE IOS / MAC OS X / WEB DEVELOPER

5/2008-  
Present

- Designed, developed and deployed numerous iPhone and Mac OS apps for clients and independently. Submitted dozens of new apps and updates to the App Store. Technologies utilized include Cocoa and Cocoa-touch, UIKit, CoreData, StoreKit, WebKit, SceneKit, QuartzCore, CoreVideo, AVFoundation, QTKit, GameKit, CoreVideo, OpenGL, OpenGL-ES, Cocos-2D, etc
- [OnCue](#) - A motion activated surveillance system for the iSight camera with remote viewing capability via the companion iOS app.
  - Full product development from concept to deployment on App Store.

GRAPHICS ENGINEER, K'NOWBE WORKS, LLC, WEST VALLEY, UTAH

4/2012-  
12/2012

- Main product development, C++, Windows API, MFC, COM, OpenGL, OSG & GLSL
- I improved their core graphics engine before using those improvements to develop visually striking fully interactive 3 dimensional engineering design tools. For instance, I built a rapid geodata contouring package. I also built intelligent pipe laying design tools which used proprietary equipment modeling software resulting in incredible realism.
- Agile development team using TFS as our revision control and a custom in house testing harness for unit tests and TDD.

WINDOWS DEVELOPER, 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 using C++ as my primary language and using the Windows MFC API. I made a series of sweeping improvements to FlexSim's GUI, as well as changes to the core application functionality. Additionally, I created a suite of performance and unit tests for the code base.

WEB DEVELOPER, SOFTWARE DEVELOPMENT CENTER, UNIVERSITY OF UTAH

6/2010-  
9/2010

- Custom web portal development
- Using only JQuery, HTML, and CSS, I developed a dynamic user interface where clients could manage their accounts and design layouts for their advertising.

IOS DEVELOPER, OP CODE LLC

5/2008-  
8/2008

- [CarSplosion](#)
- I developed the visual gimmicks, including firebombs and explosions for this mini-game using Objective-C, Cocoa-touch, Cocos2D and chipmunk-physics.

RESEARCH ASSISTANT, UNIVERSITY OF STUTTGART

INSTITUT FÜR VERFAHRENSTECHNIK UND DAMPFKESSELWESEN (INSTITUTE FOR PROCESS ENGINEERING AND POWER PLANT TECHNOLOGY)

8/2007-  
1/2008

- Student Research Exchange
- I worked with graduate students to progress their research with sulfur emissions. I did various lab work and worked with typical industrial lab equipment. At one point I was given a malfunctioning BET scanner, which I repaired within a week and used to analyze soot samples for the research team.

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.

## SKILLS

### SOFTWARE DEVELOPER

- Building Intuitive Software
- Object Oriented Design / Architecture
- Focused, Elegant, Self-Documenting Code
- Detailed UI, UX Design
- 3D Interactive Graphics - OpenGL, GLSL, CUDA
- Full Stack Developer - Back to Front Architectural Design and Development

### PROBLEM SOLVING

- Numerical Techniques
- Scientific Computing & Visualization
- CAGD, Image Processing
- Signal Processing
- Complexity Analysis
- Data Analysis / Visualization
- Geometric Design

### TECHNOLOGIES

- Objective-C, Swift, C, C++
- HTML5, CSS, JS, PHP, Python
- MySQL, SQLite, PostgreSQL
- OpenGL, GLSL
- Cocoa, Cocoa-touch, Windows API, MFC, COM, bash, zsh, AppleScript, LATEX, Git

### OTHER

- Fluent in German
- 17 years experience playing guitar

## 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 2007

## HONORS

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