

# BENJAMIN J. HUMBERSTON

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## PROFESSIONAL SUMMARY

Software engineer, researcher, and game developer with the goal of creating powerful systems and delightful user experiences. Experience developing both web and cloud-connected desktop applications. Applied research work in computer graphics, VR environments, physics-driven character animation, and machine learning. Passion for building high-performance software that is clear, organized, and maintainable over the long term.

## INTERESTS

- Computer graphics, game development, and character animation
- Cloud-connected and mobile applications
- Machine learning and data-driven computing

## EDUCATION

### MS, Computer Science

#### University of British Columbia

Thesis: *Precision Manipulations Using a Low-Dimensional Haptic Interface*  
Teaching assistant for courses in functional programming and AI.

Sep. 2014  
Vancouver, BC

### BS, Computer Science

#### Cornell University

Computer graphics and game development focus; GPA 3.98  
President of digital games club and active in student game development initiative

May 2009  
Ithaca, NY

## EXPERIENCE

### Senior Software Engineer

#### Autodesk, Inc.

Developer for ReCap applications & technologies (C++, OpenGL, GLSL, Qt, JS).  
Desktop feature and UI implementation, render performance, and cloud integration.

Sep. 2014 – Present  
Pittsburgh, PA

### Graduate Assistant in PhD program

#### Carnegie Mellon University

Research on data-driven computing and applications of machine learning to computer graphics (C++, Python, OpenGL, Android).

Sep. 2013 – July 2014  
Pittsburgh, PA

### Software Engineer

#### Electronic Arts (EA 2D studio)

Developer for browser-based *Dragon Age Journeys* and social RPG *Dragon Age Legends*.  
Roles in client (AS3) and server (Java) gameplay systems, AI, animation, optimization, and UI.  
Lead developer of character animation and turn-based combat systems.

Aug. 2009 – Apr. 2011  
Redwood Shores, CA

### Software Engineering Intern

#### Electronic Arts (Maxis studio)

Gameplay & render prototyping for unreleased expansion for *Spore*.

Summer 2008  
Emeryville, CA

### Software Engineering Intern

#### Oracle

CPU and memory performance profiling for e-commerce framework (Java).

Summer 2007  
Redwood Shores, CA

## SKILLS

- Computer graphics, rendering, and linear algebra
  - Threaded and multi-process computing
  - Commercial game development for web and desktop titles
  - Character controllers for physically-based animation
  - Multimodal VR environment design with graphical and haptic rendering
  - Machine learning applications for classification, regression, and data visualization
  - *Current tools:* C++, Python, OpenGL, GLSL, Qt, JS, Visual Studio
  - *Past tools:* MATLAB, C#, AS 3.0, Flex, MongoDB, numpy, scikit-learn
  - *Development Platforms:* Windows, Linux, Android
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## PUBLICATIONS

- B. Humberston and D. K. Pai. *Hands On: Interactive Animation of Precision Manipulation and Contact*. Best Paper award, SCA 2015. Los Angeles, CA.
  - M. Stanton, B. Humberston, B. Kase, J. F. O'Brien, K. Fatahalian, A. Treuille. *Self-Refining Games Using Player Analytics*. ACM SIGGRAPH 2014. Vancouver, BC.
  - B. Humberston and D. K. Pai. *Precision Manipulations Using a Low-Dimensional Haptic Interface*. MS thesis, University of British Columbia. Vancouver, 2014
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