

## Ben Jones

Associate Professor, Lecturer

Co-Interim Director: Master of Software Development Program  
University of Utah School of Computing

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### Research Interests

Physics based animation, simulation control, scientific computing, character animation.

### Education

#### University of Utah

*PhD Computing, Scientific Computing Track*

Salt Lake City, UT

*Aug 2011 - Jul 2015*

- Committee: Adam Bargteil (chair), Mike Kirby, Cem Yuksel, Ladislav Kavan, Nils Thuerey
- Thesis: **Artist-Guided Physics-Based Animation**
- Member Graduate Student Advisory Committee

#### University of British Columbia

*MSc Computer Science, Computer Graphics Specialization*

Vancouver, BC

*Sep 2009 - Jul 2011*

- Supervisor: Michiel van de Panne
- Thesis: **Rising Motion Controllers for Physically Simulated Characters**
- Computer Science International Merit Scholarship (\$10,000)
- Outstanding Graduate Teaching Assistant Award

#### Colorado School of Mines

*BS Computer Science, BS Engineering Physics*

Golden, CO

*Aug 2005 - May 2009*

4.0 GPA, *summa cum laude*

- Outstanding Graduate Award in Computer Science
- Outstanding Graduate Award in Engineering Physics
- Ryan Sayers Memorial Award
- Tau Beta Pi Honor Society Cataloguer
- Linux Users Group Vice President
- Member Technology in the Classroom Committee

### Awards and Honors

**Best Presentation Award**, ACM SIGGRAPH Motion in Games 2014

**Best Student Paper Award**, ACM SIGGRAPH Motion in Games 2013

**Dean's Teaching Commendation**, University of Utah Fall 2018, Spring 2020, Fall 2020

## Publications

- Thanh Son Nguyen, Zvonimir Rakamaric, **Ben Jones** [SPIN 2022]  
**Synthesis of Rigorous Floating-Point Predicates** *Proceedings of 28th International Symposium on Model Checking of Software (SPIN)*, 2022
- Xiaokai Li, Sheldon Andrews, **Ben Jones**, Adam Bargteil [I3D 2018]  
**Energized Rigid Body Fracture**  
*Proc. ACM Comput. Graph. Interact. Tech. (ACM SIGGRAPH Symposium on 3D Graphics and Games)*, Montreal, Canada, 2018
- Ben Jones**, Joshua Levine, Tamar Shinar, Adam Bargteil [MiG 2017]  
**Efficient Collision Detection for Example-Based Deformable Bodies**  
*ACM SIGGRAPH conference on Motion in Games*, Barcelona, Spain, 2017
- Michael Falkenstein, **Ben Jones**, Joshua Levine, Adam Bargteil [MiG 2017]  
**Reclustering for Large Plasticity in Clustered Shape Matching**  
*ACM SIGGRAPH conference on Motion in Games*, Barcelona, Spain, 2017
- Ben Jones**, Nils Thuerey, Tamar Shinar, Adam Bargteil [SIGGRAPH 2016]  
**Example-Based Plastic Deformation of Rigid Bodies**  
*ACM Transactions on Graphics (SIGGRAPH 2016)* volume 35(4), 2016
- Ben Jones**, April Martin, Joshua A. Levine, Tamar Shinar, Adam Bargteil [I3D 2016]  
**Ductile Fracture for Clustered Shape Matching**  
*ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*, Redmond, WA, 2016
- Ben Jones**, April Martin, Joshua A. Levine, Tamar Shinar, Adam Bargteil [MiG 2015]  
**Clustering and Collision Detection for Clustered Shape Matching**  
*ACM SIGGRAPH Conference on Motion in Games*, Paris, France, 2015
- Adam Bargteil and **Ben Jones** [MiG 2014]  
**Strain Limiting for Clustered Shape Matching**  
*ACM SIGGRAPH Conference on Motion in Games*, Los Angeles, CA, 2014  
**Winner of Best Presentation Award**
- Ben Jones**, Stephen Ward, Ashok Jallepalli, Joseph Perenia, Adam Bargteil [ToG 2014]  
**Deformation Embedding for Point-based Elastoplastic Simulation**  
*ACM Transactions on Graphics*, March 2014, Vol. 33, No. 2  
Presented at SIGGRAPH 2014
- Ben Jones**, Jovan Popović, James McCann, Wilmot Li, Adam Bargteil [CAVW 2014]  
**Dynamic Sprites: Artistic Authoring of Interactive Animations**  
*Computer Animation and Virtual Worlds*, 2014  
Special edition featuring highlights from Motion in Games 2013
- Ben Jones**, Jovan Popović, James McCann, Wilmot Li, Adam Bargteil [MiG 2013]  
**Dynamic Sprites**  
*ACM SIGGRAPH Conference on Motion in Games*, Dublin, Ireland, 2013  
**Winner of Best Student Paper Award**
- David Stuart, Joshua Levine, **Ben Jones**, Adam Bargteil [MiG 2013]  
**Automatic Construction of Coarse, High-Quality Tetrahedralizations that Enclose and Approximate Surfaces for Animation**  
*ACM SIGGRAPH Conference on Motion in Games*, Dublin, Ireland, 2013
- Stelian Coros, Andrej Karpathy, **Ben Jones**, Lionel Reveret, Michiel van de Panne [SIGGRAPH 2011]  
**Locomotion Skills for Simulated Quadrupeds**  
*ACM Transactions on Graphics (SIGGRAPH 2011)*, volume 30 (4), 2011

## External Service

### **Program chair for ACM SIGGRAPH Conference on Motion, Interaction, and Games 2018 (MIG 2018) with Jehee Lee.**

Program committee member for ACM SIGGRAPH Conference on Motion in Games, 2015-2017, 2019-2022.

Paper reviewer for SIGGRAPH, SIGGRAPH Asia, ACM SIGGRAPH Conference on Motion in Games, IEEE Transactions on Visualization and Computer Graphics, Eurographics, Graphical Models,

The Visual Computer Journal, and IEEE Journal of Biomedical and Health Informatics.

## Departmental Service

Member Lecturing Faculty Hiring Committee (Spring 2019, Spring 2020, Spring 2021)

Member Bachelors of Software Development Degree Committee

Chair of Utah MSD Hiring Committee (Spring 2018)

Member of Utah MSD Admissions committee (Spring 2018, 2019)

Chair of DU CS Undergraduate Committee (August 2016-July 2017)

Organizer of DU CS Graduate Research Seminar (August 2016-June 2017)

## Work Experience

### **University of Utah**

*Associate Professor, Lecturer*

Salt Lake City, UT

*July 2017 - present*

- Performed curriculum development and teaching in Masters of Software Development Program (MSD)
- Responsible for teaching 5 courses per year, advising capstone projects, and co-organizing the MSD seminar
- Member of admissions committee
- Promoted from Assistant Professor, Lecturer in 2022

### **University of Denver**

*Assistant Teaching Professor*

Denver, CO

*Aug 2015 - July 2017*

- Responsible for teaching 6 computer science courses per year, advising, and department service

### **University of Utah**

*Research Assistant under Dr. Adam Bargteil*

Salt Lake City, UT

*Aug 2011 - Jul 2015*

- Performed research on physics based animation
- Developed techniques for artist-guided simulation of deformable bodies

### **Salt Lake Lions**

*Athlete*

Salt Lake City, UT

*Dec 2013 - Jul 2014*

- Played the inaugural season of the Lions in the American Ultimate Disc League
- Scored 10 goals, threw 10 assists, and recorded 8 passes defended in 13 games
- Performed community outreach for the team

### **Univeristy of Utah**

*Instructor*

Salt Lake City, UT

*Aug 2013 - Dec 2013*

- Taught an introductory programming course using the "flipped classroom" technique
- Created video lectures and active learning exercises to improve student understanding

### **Adobe Systems Creative Technologies Lab**

*Research Intern*

Seattle, WA

*May 2012 - Aug 2012*

- Designed and prototyped a new physics-based animation system
- Work was published and presented at Motion in Games, winning the Best Student Paper Award
- Extended version of the work was published in Computer Animation and Virtual Worlds

### **University of British Columbia**

*Research Assistant under Dr. Michiel van de Panne*

Vancouver, BC

*May 2010 - Jun 2011*

- Performed research on physics based character animation

**CSM Mechanical Engineering Department***Research Assistant under Dr. Anthony Petrella*Golden, CO  
May 2009 - Aug 2009

- Contributed to development of real-time X-ray simulation system
- Worked with motion capture systems, graphics pipeline and computer vision libraries

**Toilers Research Group (CSM)***Research Assistant under Dr. Tracy Camp*Golden, CO  
Jan 2009 - May 2009

- Debugged and extended iNSpect network visualization tool
- Created test simulations using NSNAM network simulator

**US Geological Survey***Web Programmer*Golden, CO  
Jun 2008 - Dec 2008

- Created and maintained interactive administrative website for earthquake analysts
- Implemented GUI interface for querying and modifying user generated earthquake report database

**Teaching Experience****Assistant Professor, Lecturer***CS 4400: Computer Systems*

University of Utah

*Spring 2021, 2022**CS 6010 (MSD): Introduction to Software Development**Fall 2017, 2018, 2019, 2020**CS 6011 (MSD): Computer Programming**Fall 2017, 2018, 2019, 2020**CS 6013 (MSD): Systems 1 (Computer Architecture and Operating Systems)**Spring 2018, 2019**CS 6014 (MSD): Systems 2 (Computer Networks and Security)**Spring 2018 (co-taught), '19, '20, '21, '22**CS 6017 (MSD): Data Analysis and Visualization**Summer 2018, 2019, 2020, 2021**CS 6019 (MSD): Master of Software Development Project (capstone advising)**Fall 2018, 2019, 2020, 2021***Assistant Teaching Professor**

University of Denver

*COMP 2673: Introduction to Computer Science III (Data Structures in Java)**Spring 2017**COMP 2355: Introduction to Systems Programming**Spring 2017**COMP 2355: Introduction to Systems Programming**Winter 2017**COMP 1672: Introduction to Computer Science II**Winter 2017**COMP 1672: Introduction to Computer Science II**Fall 2016**COMP 1101: Analytical Inquiry (for nonmajors)**Fall 2016**COMP 1101: Analytical Inquiry (Online, for nonmajors)**Summer 2016**COMP 3704: Special Topics in Scientific Computing/Numerical Methods**Spring 2016**COMP 2673: Introduction to Computer Science III (Data Structures in Java)**Spring 2016**COMP 1672: Introduction to Computer Science II (2 sections)**Winter 2016**COMP 1571: Procedural Programming**Fall 2015**COMP 1671: Introduction to Computer Science I**Fall 2015***Instructor**

University of Utah

*EAE 1410: Introduction to Object Oriented Programming**Fall 2013***Teaching Assistant**

University of Utah

*CS 5600: Computer Graphics**Spring 2012**CS 1000: Engineering Computing (Matlab and VBA)**Fall 2011***Teaching Assistant**

University of British Columbia

*CPSC 213: Introduction to Computer Systems**Spring 2011**CPSC 311: Definition of Programming Languages**Fall 2010**CPSC 313: Computer Hardware and Operating Systems**Spring 2010**CPSC 221: Basic Algorithms and Data Structures**Fall 2009***Teaching Assistant**

Colorado School of Mines

*PHGN 100: Introductory Mechanics**Fall 2006*

## **Community Service**

*Ultimate Coach, SLC West High School Krakens (Mixed) and Gorillaz (Girls)*

Fall 2017 - Spring 2021