

Brett R. Jones

University of Illinois at Urbana-Champaign
School of Computer Science
201 N. Goodwin Ave.
Champaign, IL 61821

www.brettrjones.com
www.augmentedengineering.com
brjones2@illinois.edu
(708) 307-4659

EDUCATION

- Ph.D. Candidate, Computer Science, University of Illinois at Urbana-Champaign 2011-Present
Advisors: David Forsyth and Brian Bailey
- M.S., Computer Science, University of Illinois at Urbana-Champaign 2008-2010
Advisor: Roy Campbell
GPA: 4.0/4.0
- B.S., Computer Science, University of Illinois at Urbana-Champaign 2004-2008
Application sequence in computer graphics and fine arts
Undergraduate Thesis Advisor: David Forsyth
GPA: 3.99/4.0, University Honors (Bronze Tablet)

RESEARCH INTERESTS

Applications of computer vision to human computer interaction, especially novel display and interaction technology. Focusing on spatial augmented reality, 3D scanning, projector-camera systems and tangible interfaces.

PUBLICATIONS

- B. Jones, R. Sodhi, R. Campbell, G. Garnett, B. Bailey. Build Your World and Play in It: Interacting with Surface Particles on Complex Objects. *ISMAR: Proceedings of the IEEE International Symposium on Mixed and Augmented Reality*, 2010. **Best Student Paper Award.**
- Herring, S., B. Jones, and B.P. Bailey. Idea Generation Techniques among Creative Professionals. *Hawaii International Conference on System Sciences (HICSS-42)*, 2009.

THESIS

- B. Jones. Augmenting Complex Surfaces with Projector-Camera Systems. Master's Thesis, University of Illinois at Urbana-Champaign, 2010.

WORK EXPERIENCE

- University of Illinois at Urbana-Champaign, Urbana, IL. 2011-present
Research Assistant
Exploring 3D spatial input for mobile devices using depth sensors. Prototyping interaction techniques, conducting empirical user studies and developing vision based finger-tracking.
- NCSA Cultural Computing Group, Urbana, IL. 2009-2010
Research Assistant
Research into novel projector-camera systems, gesture tracking using dynamic Bayesian networks and applications to live performance/installations. Developed novel projection based interfaces for performers and executed numerous demonstrations and live performances.

Walt Disney Imagineering, Glendale, CA. Research Associate Created a novel projector-camera system for generating a projector image from multiple camera views. Concept is undergoing productization for use in theme-park installations.	Summer 2010
Research Associate Created a prototype real-time projection masking system that re-projects a human silhouette.	Summer 2009
Creative Technology Group Intern Developed systems, tools and concepts for immersive ride pre-visualization and concept prototyping. Distributed virtual reality systems integration and programming, Maya tools interface creation and prototyping new interactive experiences.	Summer 2008
Electronic Arts, Redwood City, CA. Technical Artist Developed tools to improve the workflow for the creation of CG assets. Worked closely with artists and engineers to develop solutions for the content pipeline and build process. Focus upon developing Maya Python/MEL scripts and C# tools.	Summer 2007

TEACHING EXPERIENCE

Teaching Assistant, Computer Architecture II (Prof. Craig Zilles) <i>(On the List of Teachers Ranked as Excellent by their Students)</i>	Spring 2009
Teaching Assistant, Interactive Computer Graphics (Prof. John Hart)	Fall 2008

HONORS & AWARDS

Qualcomm Innovation Fellowship	2011
Siebel Scholar Fellowship	2010
UIUC CS Grad Student Expo - Best Research Presentation	2010
University Highest Honors - Bronze Tablet	2008
Dunn Systems Undergraduate Scholarship	2008
Daniel L. Slotnick Scholarship	2007-08
Ruth and Harold Hayward Scholarship	2007
Illinois General Assembly Legislative Scholarship	2005

ACADEMIC PROJECTS (see www.brettrjones.com)

<i>Open-light - Open Source Structured Light Implementation</i> + Projector-camera calibration An open-source structured light project to democratize 3D scanning with low cost equipment. Includes a projector-camera calibration library.	2010
<i>Projection-based Interfaces</i> Explored interacting with appropriated surfaces through a projector-camera system.	2010
<i>Interactive 3D Architectural Modeling from Dense Point Clouds</i> Adaption of the paper "Interactive 3D Architectural Modeling from Unordered Photo Collections" to use dense point cloud data from LIDAR scans.	2009
<i>Projection Mapping Toolkit</i> A system and series of tools for displaying video textures on physical display surfaces. The toolkit was used in a variety of performances and demos.	2009
<i>Implementation of Projector Calibration with Embedded Light Sensors</i>	2008

Re-implementation of the 2004 UIST paper in calibrating projected content with light sensors and projected codes.

Vector Paint – Undergraduate Thesis (Advisor: Prof. David Forsyth)

2008

Interactive painting application bridging the gap between automated and manual painting methods. Users rapidly create compelling painterly images through a unique interface stressing user control and a short feedback cycle.

ART PROJECTS (see www.brettrjones.com)

HASTAC Performance

2010

Live performance with dancers interfacing with Interactive Surface Particles through accelerometers and vision tracked IR pointers. (Utilizing the tech. from the ISMAR 2010 paper).

Astral Convertible

2010

Assisted in tower projections for a reimagining of Trisha Brown's seminal work.

SAR Opera Character

2009

A spatial augmented reality mannequin head transforms into the "Queen of the Night" in a live student production of "The Magic Flute"

New Media SAR Art Piece

2009

Picture frames and a mannequin head come to life pushing the boundaries of digital identity.

UIUC STUDENT CHAPTER OF ACM SIGGRAPH (<http://www.acm.uiuc.edu/siggraph/>)

Research Director

2008-09

Mentor undergraduates in research projects. Mentees won 2nd place at UIUC Engineering Open House in "Undergraduate Research"

Chair

2006-07

Led a community of programmers, artists and designers dedicated to the development of short films, graphics research and video games. Grew from 6 to 30 active members. Organized a UIUC screening of the SIGGRAPH 2007 Electronic Theater with 200+ attendees. Led the creation of a short animation "Polarity" and two video games "Chess v. 2.0" and "Mesozoic Park." Won 3 UIUC Engineering Open House awards as Chair.

ACTIVITIES AND INTERESTS

Tinkering, Marathons, Triathlons, Computational Photography, Art, Guitar, Film

Raised \$2500.00 benefiting the *Leukemia and Lymphoma Society*

SKILLS

Languages: C/C++, Matlab, C#, Python, Java, CUDA, MEL

Libraries: OpenGL, OpenCV, OpenNI, Android SDK, Boost, GSL, QT, Ogre3D, Panda3D, VTK

Design: Maya, Final Cut/Premiere, Photoshop, Illustrator, Flash

SELECTED PRESS ON RESEARCH

Blogs

HackADay: Project introduces augmented reality to reality, 2010.

Korea IT Times: Better Than Real, 2010.

Create Digital Motion: Begone, Flat Screens! A New Projection Mapping, Augmented Reality Toolkit, 2009.