

# DR. COREY TOLER-FRANKLIN

2063 Kemper Hall, 1 Shields Avenue, Davis CA 95616 Ph. (510) 449-6033 [corey.tolerfranklin@gmail.com](mailto:corey.tolerfranklin@gmail.com) [www.coreytoler.com](http://www.coreytoler.com)

## EDUCATION

**Princeton University, Computer Science Department** 2011

*Ph.D., Computer Science*

*Research Areas:* Computer Graphics and Computer Vision

*Topics:* Acquisition and analysis of the shape and appearance of real-world objects. Algorithms for processing and visualizing complex datasets including matching and non- photorealistic rendering.

*Thesis:* *Matching, Visualizing and Archiving Cultural Heritage Artifacts Using Multi-Channel Images*

*Teaching:* COS 126 General Computer Science, COS 226 Algorithms and Data Structures

*Advisor:* Dr. Szymon Rusinkiewicz

**Cornell University, Program of Computer Graphics** 1999

*M.S., Architecture, Major: Computer Graphics*

*Research Areas:* Conceptual modeling tools for architectural design

*Topics:* Developed a visualization system to teach the mathematical concepts behind projective geometry. Introduced software and novel digital rear-projected display systems to architecture students at Cornell.

*Thesis:* *A Computer-Based Approach for Teaching Architectural Drawing*

*Teaching:* Introduced architecture students to computer graphics in a novel design studio.

*Advisor:* Dr. Donald Greenberg

**Cornell University, College of Architecture, Art and Planning** 1997

*B.Arch (Class Rank 4 out of 21)*

*Thesis:* *On Site Museum of Oral History, Nassau, Bahamas*

*Cornell Abroad:* Studied significant architectural works and cultures in Italy, Africa and Malta 1995

## PROFESSIONAL EXPERIENCE

**University of California Davis, Computer Science Department, Davis, CA** July 2012 - present

President's Postdoctoral Fellow

Working with UC Davis Professor Nina Amenta and Yale Professor Holly Rushmeier

**Yale University, Computer Science Department, New Haven, CT** July 2011 – July 2012

Yale Postdoctoral Fellow

Working with Professor Holly Rushmeier

**Adobe Systems, Advanced Technology Labs, San Jose, CA** Summer 2007

Computer Vision Group –Developed system for creating computer-generated mosaics.

**Google Inc., Boulder, Colorado** Summer 2006

Google SketchUp Team – Developed prototype for controlling line density in SketchUp models.

**Autodesk Inc., San Francisco, CA** March 2000 – March 2004

Software Engineer – 3D Graphics System Team

Implemented platform enhancements to the 3D graphics system to improve efficiency; Developed 3D navigation, rendering, and presentation tools; Developed API's for 3rd party developers; Notable contributions to AutoCAD 2002, 2004 and 2005: 3D Graphics Configuration, True Color Support, Shaded Viewport Plotting, 3D Navigation Tools, Microsoft Windows Logo Certification, and Sheet Set Management.

*Special Project - Strategic Accounts:* Led pilot project between Autodesk executives and two international architecture firms - HOK and Gensler; Consulted on-site at firms to develop and integrate new technologies.

**Hawley Peterson & Snyder Architects, Mountain View, CA** April 2004 – May 2005

Software Engineer/Project Architect

Led collaborative Design-Assist project to integrate Building Information Modeling Technology into the design process to estimate construction time/cost: Projects - Camino Medical Group Campus, Palo Alto Medical Facility.

## RESEARCH SOFTWARE DEVELOPED

### RGBNMatch

Developed hardware and software for data capture, normal reconstruction and computer assisted matching.

Deployed system on-site at the Akrotiri Excavation Laboratory of Wall Paintings, Santorini, Greece

### RGBNRender

Developed system for generating scientific visualizations of surface details on real-world objects.

## HONORS

Google Anita Borg Scholarship for Women in Computer Science: Finalist	2009
Autodesk 2002 Software Developer Award	2002
Shreve Award: MS Thesis Project - For excellence and originality	1999
The Eschweiler Prize: Recognized for outstanding academic accomplishments	1997

## SPONSERED RESEARCH

NSF iDigBio Visiting Scholar Award, PI Corey Toler-Franklin	2013
University of California President's Postdoctoral Fellowship, PI Corey Toler-Franklin	2012 - 2013
National Science Foundation (NSF) Graduate Research Fellowship	2005-2008
Presidential Fellowship, Princeton University	2005-2009
Merit Award, Princeton University	2005-2009
Robert James Eidlitz Traveling Fellowship	1998

## PUBLICATIONS

### **Learning How to Match Fresco Fragments**

Thomas Funkhouser, Hijung Shin, Corey Toler-Franklin, Antonio Garcia Castaneda, Benedict Brown, David Dobkin, Szymon Rusinkiewicz, Tim Weyrich.

*Eurographics 2011 Special Area Track on Cultural Heritage, Llandudno, UK, April 2011*

### **Multi-Feature Matching of Fresco Fragments**

Corey Toler-Franklin, Benedict Brown, Tim Weyrich, Thomas Funkhouser, Szymon Rusinkiewicz.

*ACM Transactions on Graphics (Proc. SIGGRAPH Asia), Seoul, Korea, December 2010.*

### **A System for High-Volume Acquisition and Matching of Fresco Fragments: Reassembling Theran Wall**

**Paintings:** Benedict Brown, Corey Toler-Franklin, Diego Nehab, Michael Burns, Andreas Vlachopoulos, Christos Doumas, David Dobkin, Szymon Rusinkiewicz, Tim Weyrich.

*ACM Transactions on Graphics (Proc. SIGGRAPH), Los Angeles, CA, August, 2008.*

### **Illustration of Complex Real-World Objects using Images with Normals.**

Corey Toler-Franklin, Adam Finkelstein, and Szymon Rusinkiewicz.

*International Symposium on Non-Photorealistic Animation and Rendering (NPAR) San Diego, CA, August 2007*

### **Courses/Tutorials**

#### **Principles and Practices of Robust, Photography-based Digital Imaging Techniques for Museums:**

Co-presented full day course. Presented acquisition and rendering algorithms for museum conservation.

VAST 11<sup>th</sup> International Symposium on Virtual Reality, Archaeology and Cultural Heritage

(Proc. EUROGRAPHICS 2010), Palais du Louvre, Paris, France, September 2010.

### **Journal Papers**

#### **Learning How to Match Fresco Fragments**

Thomas Funkhouser, Hijung Shin, Corey Toler-Franklin, Antonio Garcia Castaneda, Benedict Brown, David Dobkin, Szymon Rusinkiewicz, Tim Weyrich.

*Journal on Computing and Cultural Heritage 4(2), November 2011.*

## TEXTBOOK CHAPTERS

### Blackwell Companions to Anthropology: A Companion to Rock Art

*Chapter 14: Rock art as digital heritage: advances in photo enhancement technology and digital archiving* Ruth Tringham, Michael Ashley and Cinzia Perlingieri (University of California, Berkeley), Liam Brady (University of Western Australia), Mark Mudge, Tommy Noble, Neffra Matthews, Szymon Rusinkiewicz, Corey Toler-Franklin and Carla Schroer (Cultural Heritage Imaging, Princeton University), Wiley Publishing 2012.

## INVITED TALKS/WORKSHOPS

### **University of California San Diego, Computer Science Department, San Diego, CA, November, 2013**

Photometric Capture Techniques for Analyzing Complex Surfaces

### **Clemson University, Visual/Human-Centered Computing Seminar, Clemson, SC, November, 2013**

Photometric Capture Techniques for Analyzing Complex Surfaces

### **Conference for African American Researchers in the Mathematical Sciences, University of California San Diego, San Diego, CA, July 2013, Multi-Spectral Imaging Techniques for Analyzing Biological Specimens**

### **University of Florida iDigBio HUB, Gainesville, Florida, February 2013**

Data Capture and Analysis of Artifacts and Biological Specimens Using Multi-Channel Images

**The National Evolutionary Synthesis Center, Duke University, Durham, North Carolina, February 2013**  
Multi-Spectral Imaging Techniques for Analyzing Biological Specimens

**Lehman College CUNY Computer Science Department, Bronx, New York, February 2013**  
Analyzing Biological Specimens Using Multi-Spectral Images

**University of California Berkeley, The CITRIS Banatao Institute, Berkeley, California, September 2012**  
Research Exchange Series: Matching, Visualizing, and Archiving Artifacts Using Multi-Channel Images

**The American Museum of Natural History (AMNH), New York, New York, June 2012**  
Data Acquisition Techniques for Documenting and Analyzing Biological Specimens

**Yale University Computer Science Department, New Haven CT, June 2012**  
Matching, Visualizing and Archiving Cultural Heritage Artifacts Using Multi-Channel Images

**Yale University, Peabody Museum, SPNHC 27th Annual meeting, New Haven, CT, June 2012**  
Digitizing the Thera Frescoes : Practical 3D acquisition methods for museum conservation

**Adobe Systems, Inc., Advanced Technologies Lab, San Francisco, California, May 2012.**  
Matching, Visualizing and Archiving Cultural Heritage Artifacts Using Multi-Channel Images

**University of California Berkeley Computer Science Department, Berkeley, California, October 2011**  
Visual Computing Lab Talk: Computer Graphics and Computer Vision Techniques for Preserving Artifacts

**Akrotiri Excavation Laboratory of Wall Paintings, Santorini, Greece, July 2009, July 2010, July 2011**  
Summer Workshop Session: A Matching System for Reassembling the Thera Frescos

**University of Oxford, Oxford, United Kingdom, February 2011**  
RTISAD Oxford Workshop: Digital Transformations: New developments in cultural heritage imaging

**University of California Los Angeles Math Department, Los Angeles, California, January 2011**  
Guest Lecturer: Applied Math/Image Processing Seminar: Pattern Matching Algorithms and Reassembly Systems

**Hewlett Packard Laboratories Palo Alto, California, January 2011**  
Technical Talk Series: Computer Graphics for Cultural Heritage Preservation

**University of Southern California, Los Angeles, California January 2011**  
Computer Graphics Techniques for Digitizing and Visualizing Artifacts

**Rochester Institute of Technology, Center for Imaging Science, Rochester, New York, October 2010**  
Colloquium Talk: Matching, Visualizing and Analyzing Artifacts Using Multi-Channel Images

**The Museum of Modern Art (MoMA) Conservation Department, New York, New York, July 2010**  
Generating Scientific Illustrations using Non-Photorealistic Rendering

**Adobe Systems, Inc., San Jose, California, August 2007**  
Non-Photorealistic Illustration using RGBN Images

**Google Inc., Boulder Colorado, August 2006**  
Google Tech Talk Series: A Prototype for Controlling Line Density in 3D Models

## **PROFESSIONAL SERVICE**

### **Memberships**

Association for Computing Machinery (ACM)  
European Association for Computer Graphics (EG)  
IEEE Computer Society  
National Society of Black Engineers (NESBE)  
American Institute of Architects (AIA)  
National Organization of Minority Architects (NOMA)  
Wesley L. Harris Scientific Society (Founding Member), Princeton, University (WLHSS)

### **Technical Program Committee Memberships**

Eurographics International Scientific Committee  
International Symposium on Virtual Reality, Archaeology and Cultural Heritage, VAST 2010, VAST 2011  
Digital Heritage 2013 (Under the patronage of UNESCO ), International Congress 2013  
ACM Journal on Computing and Cultural Heritage (JOCCH), 2013

## **OTHER SERVICE**

Women in Science and Engineering at Princeton Focus Group  
Autodesk Design Your Future Program for Women in Science and Technology(2000 – 2004)