

**Citation:**

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**Collaborating Sites:**

University of Illinois  
Institute for Computing in Humanities, Arts, and Social Science  
National Center for Supercomputing Applications

**Team members:**

University of Illinois  
Peter Bajcsy  
Jennifer Guiliano  
Kevin Hamilton

**Acknowledgments**

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the collaborating institutions or the National Science Foundation.

**02 INFORMATION ABOUT PRINCIPAL INVESTIGATORS/PROJECT DIRECTORS(PI/PD) and  
co-PRINCIPAL INVESTIGATORS/co-PROJECT DIRECTORS**

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Submit only ONE copy of this form for each PI/PD and co-PI/PD identified on the proposal. The form(s) should be attached to the original proposal as specified in GPG Section II.C.a. Submission of this information is voluntary and is not a precondition of award. This information will not be disclosed to external peer reviewers. **DO NOT INCLUDE THIS FORM WITH ANY OF THE OTHER COPIES OF YOUR PROPOSAL AS THIS MAY COMPROMISE THE CONFIDENTIALITY OF THE INFORMATION.**

---

PI/PD Name: Peter Bajcsy

Gender:  Male  Female  
Ethnicity: (Choose one response)  Hispanic or Latino  Not Hispanic or Latino

Race:  
(Select one or more)  
 American Indian or Alaska Native  
 Asian  
 Black or African American  
 Native Hawaiian or Other Pacific Islander  
 White

Disability Status:  
(Select one or more)  
 Hearing Impairment  
 Visual Impairment  
 Mobility/Orthopedic Impairment  
 Other  
 None

Citizenship: (Choose one)  U.S. Citizen  Permanent Resident  Other non-U.S. Citizen

Check here if you do not wish to provide any or all of the above information (excluding PI/PD name):

REQUIRED: Check here if you are currently serving (or have previously served) as a PI, co-PI or PD on any federally funded project

---

**Ethnicity Definition:**

**Hispanic or Latino.** A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race.

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**Native Hawaiian or Other Pacific Islander.** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

**White.** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

---

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---

**PI/PD Name:** Jennifer Guiliano

**Gender:**  Male  Female

**Ethnicity:** (Choose one response)  Hispanic or Latino  Not Hispanic or Latino

**Race:**  
(Select one or more)

American Indian or Alaska Native  
 Asian  
 Black or African American  
 Native Hawaiian or Other Pacific Islander  
 White

**Disability Status:**  
(Select one or more)

Hearing Impairment  
 Visual Impairment  
 Mobility/Orthopedic Impairment  
 Other  
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**PI/PD Name:** Kevin Hamilton

**Gender:**  Male  Female

**Ethnicity:** (Choose one response)  Hispanic or Latino  Not Hispanic or Latino

**Race:**  
(Select one or more)

American Indian or Alaska Native

Asian

Black or African American

Native Hawaiian or Other Pacific Islander

White

**Disability Status:**  
(Select one or more)

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## List of Suggested Reviewers or Reviewers Not To Include (optional)

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### **SUGGESTED REVIEWERS:**

Not Listed

### **REVIEWERS NOT TO INCLUDE:**

Not Listed

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## COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE/if not in response to a program announcement/solicitation enter NSF 10-1					<b>FOR NSF USE ONLY</b>	
<b>NSF 10-1</b>					<b>NSF PROPOSAL NUMBER</b>	
FOR CONSIDERATION BY NSF ORGANIZATION UNIT(S) (Indicate the most specific unit known, i.e. program, division, etc.)						
<b>IIS - INFO INTEGRATION &amp; INFORMATICS</b>						
<b>DATE RECEIVED</b>	<b>NUMBER OF COPIES</b>	<b>DIVISION ASSIGNED</b>	<b>FUND CODE</b>	<b>DUNS#</b> (Data Universal Numbering System)	<b>FILE LOCATION</b>	
				<b>041544081</b>		
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)		SHOW PREVIOUS AWARD NO. IF THIS IS <input type="checkbox"/> A RENEWAL <input type="checkbox"/> AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, LIST ACRONYM(S)		
<b>376000511</b>						
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE			ADDRESS OF AWARDEE ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE			
<b>University of Illinois at Urbana-Champaign</b>			<b>SUITE A</b>			
AWARDEE ORGANIZATION CODE (IF KNOWN)			<b>1901 SOUTH FIRST ST.</b>			
<b>0017756000</b>			<b>CHAMPAIGN, IL 61820-7406</b>			
NAME OF PERFORMING ORGANIZATION, IF DIFFERENT FROM ABOVE			ADDRESS OF PERFORMING ORGANIZATION, IF DIFFERENT, INCLUDING 9 DIGIT ZIP CODE			
PERFORMING ORGANIZATION CODE (IF KNOWN)						
IS AWARDEE ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions)						
		<input type="checkbox"/> SMALL BUSINESS		<input type="checkbox"/> MINORITY BUSINESS		<input type="checkbox"/> IF THIS IS A PRELIMINARY PROPOSAL THEN CHECK HERE
		<input type="checkbox"/> FOR-PROFIT ORGANIZATION		<input type="checkbox"/> WOMAN-OWNED BUSINESS		
TITLE OF PROPOSED PROJECT <b>Cross-Disciplinary Investigations in Imaging and Image Analyses: An NSF-Sponsored Workshop</b>						
REQUESTED AMOUNT	PROPOSED DURATION (1-60 MONTHS)	REQUESTED STARTING DATE	SHOW RELATED PRELIMINARY PROPOSAL NO. IF APPLICABLE			
\$ <b>50,000</b>	<b>12</b> months	<b>09/01/10</b>				
CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW						
<input type="checkbox"/> BEGINNING INVESTIGATOR (GPG I.G.2)		<input type="checkbox"/> HUMAN SUBJECTS (GPG II.D.7) Human Subjects Assurance Number _____				
<input type="checkbox"/> DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C.1.e)		Exemption Subsection _____ or IRB App. Date _____				
<input type="checkbox"/> PROPRIETARY & PRIVILEGED INFORMATION (GPG I.D, II.C.1.d)		<input type="checkbox"/> INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.2.j)				
<input type="checkbox"/> HISTORIC PLACES (GPG II.C.2.j)		_____				
<input type="checkbox"/> EAGER* (GPG II.D.2) <input type="checkbox"/> RAPID** (GPG II.D.1)		<input type="checkbox"/> HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.G.1)				
<input type="checkbox"/> VERTEBRATE ANIMALS (GPG II.D.6) IACUC App. Date _____		_____				
PHS Animal Welfare Assurance Number _____						
PI/PD DEPARTMENT		PI/PD POSTAL ADDRESS				
<b>Natl Center for Supercomputing Apps</b>		<b>1207 West Clark Street</b>				
PI/PD FAX NUMBER		<b>NCSA Building - Room 2022b</b>				
<b>217-244-7396</b>		<b>Urbana, IL 61801</b>				
		<b>United States</b>				
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Electronic Mail Address		
PI/PD NAME	<b>PhD</b>	<b>1997</b>	<b>217-265-5387</b>	<b>pbajcsy@ncsa.uiuc.edu</b>		
CO-PI/PD	<b>DPhil</b>	<b>2010</b>	<b>217-333-2187</b>	<b>guiliano@illinois.edu</b>		
CO-PI/PD	<b>MA</b>	<b>2000</b>	<b>217-333-2187</b>	<b>kham@uiuc.edu</b>		
CO-PI/PD						
CO-PI/PD						

# CERTIFICATION PAGE

## Certification for Authorized Organizational Representative or Individual Applicant:

By signing and submitting this proposal, the Authorized Organizational Representative or Individual Applicant is: (1) certifying that statements made herein are true and complete to the best of his/her knowledge; and (2) agreeing to accept the obligation to comply with NSF award terms and conditions if an award is made as a result of this application. Further, the applicant is hereby providing certifications regarding debarment and suspension, drug-free workplace, lobbying activities (see below), responsible conduct of research, nondiscrimination, and flood hazard insurance (when applicable) as set forth in the NSF Proposal & Award Policies & Procedures Guide, Part I: the Grant Proposal Guide (GPG) (NSF 10-1). Willful provision of false information in this application and its supporting documents or in reports required under an ensuing award is a criminal offense (U. S. Code, Title 18, Section 1001).

## Conflict of Interest Certification

In addition, if the applicant institution employs more than fifty persons, by electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative of the applicant institution is certifying that the institution has implemented a written and enforced conflict of interest policy that is consistent with the provisions of the NSF Proposal & Award Policies & Procedures Guide, Part II, Award & Administration Guide (AAG) Chapter IV.A; that to the best of his/her knowledge, all financial disclosures required by that conflict of interest policy have been made; and that all identified conflicts of interest will have been satisfactorily managed, reduced or eliminated prior to the institution's expenditure of any funds under the award, in accordance with the institution's conflict of interest policy. Conflicts which cannot be satisfactorily managed, reduced or eliminated must be disclosed to NSF.

## Drug Free Work Place Certification

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Drug Free Work Place Certification contained in Exhibit II-3 of the Grant Proposal Guide.

## Debarment and Suspension Certification

(If answer "yes", please provide explanation.)

Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency?

Yes

No

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant is providing the Debarment and Suspension Certification contained in Exhibit II-4 of the Grant Proposal Guide.

## Certification Regarding Lobbying

The following certification is required for an award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 and for an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.

## Certification for Contracts, Grants, Loans and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

- (1) No federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

## Certification Regarding Nondiscrimination

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative is providing the Certification Regarding Nondiscrimination contained in Exhibit II-6 of the Grant Proposal Guide.

## Certification Regarding Flood Hazard Insurance

Two sections of the National Flood Insurance Act of 1968 (42 USC §4012a and §4106) bar Federal agencies from giving financial assistance for acquisition or construction purposes in any area identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards unless the:

- (1) community in which that area is located participates in the national flood insurance program; and
- (2) building (and any related equipment) is covered by adequate flood insurance.

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative or Individual Applicant located in FEMA-designated special flood hazard areas is certifying that adequate flood insurance has been or will be obtained in the following situations:

- (1) for NSF grants for the construction of a building or facility, regardless of the dollar amount of the grant; and
- (2) for other NSF Grants when more than \$25,000 has been budgeted in the proposal for repair, alteration or improvement (construction) of a building or facility.

## Certification Regarding Responsible Conduct of Research (RCR)

**(This certification is not applicable to proposals for conferences, symposia, and workshops.)**

By electronically signing the NSF Proposal Cover Sheet, the Authorized Organizational Representative of the applicant institution is certifying that, in accordance with the NSF Proposal & Award Policies & Procedures Guide, Part II, Award & Administration Guide (AAG) Chapter IV.B., the institution has a plan in place to provide appropriate training and oversight in the responsible and ethical conduct of research to undergraduates, graduate students and postdoctoral researchers who will be supported by NSF to conduct research.

The undersigned shall require that the language of this certification be included in any award documents for all subawards at all tiers.

AUTHORIZED ORGANIZATIONAL REPRESENTATIVE		SIGNATURE		DATE	
NAME					
TELEPHONE NUMBER	ELECTRONIC MAIL ADDRESS			FAX NUMBER	

\* EAGER - EARly-concept Grants for Exploratory Research

\*\* RAPID - Grants for Rapid Response Research

# **Title: Cross-Disciplinary Investigations in Imaging and Image Analyses: An NSF-Sponsored Workshop**

Division: NSF CISE IIS –Information Integration and Informatics (III) program

Proposal Type: NSF 10-1 (General Solicitation)

Attention to: Steven Griffin

## **Project Summary**

From challenges related to data acquisition, storage, processing, and visualization to approaches to tool development, the potential for cross-fertilization among humanities, arts, social sciences and computational sciences are becoming more likely. No matter the domain or subfield, regardless of whether it is clinical and research domains utilizing medical imaging, universe telescope-based imaging, air-borne and ground imaging, satellite imaging, or historical documentary imaging, the challenges related to imaging and image analyses are manifest and common to all researchers and domain-specialists exploring imaging and imaging analysis.

Uniting the multi-disciplinary stakeholders in imaging and imaging analyses, this workshop presents a unique opportunity for cross-fertilizations, cross-collaboration, and information-exchange by using computational inquiries to bridge humanities, arts, and sciences research. Traditional workflows illustrate this compartmentalization and the need for cross-disciplinary exchanges. Scientists in humanities, social sciences and arts go from working in physical spaces to working in digital spaces, digitize historical artifacts via scanning, observe behavior via camera recordings and convey artistic perceptions via graphics. While this process is documented thoroughly, the resulting research generally only manifests in written publications or presentations targeted at their particular domain audience. Rarely do you find a humanities researcher reading the leading journals of computational science. Similarly, the physical sciences observe phenomena at micro and macro scales over space and time, undertake imaging and image analyses, and report their finding via prominent journals and computing organizations like the *International Journal of Computing* and the IEEE. They too are rarely engaged with humanities, and arts events and publications. This workshop presents the opportunity to elucidate connections between these communities via the imaging and image analyses. Significantly, the lack of forums for cross fertilization of imaging and image analysis efforts and ideas in multiple communities developing relevant technologies is not limited to the United States. Just as U.S. researchers and domain experts are seeking collaborative forums such as the one proposed here, so too are international researchers. As a result, this Workshop on Cross-Disciplinary Investigations into Imaging and Image Analyses will bring together representatives from US and foreign academic institutions interested in the use of imaging devices and applications of image analyses in their domains. In doing so, it will allow for global considerations of approaches to image and imaging analyses and will seed international collaborations for stakeholders across the humanities, arts, social sciences (HASS) and technology domains.

**Intellectual Merit:** The intellectual merit of Cross-Disciplinary Investigations in Imaging and Image Analyses lies in information exchange, cross-disciplinary collaboration, and cross fertilization of on-going and future efforts in the area of imaging and image analyses. For example, the computer science and electrical engineering communities have made significant advances in designing imaging techniques and image analysis algorithms while the HASS digital community has made strides in embracing new multi-media, social networking and web-based technologies. The workshop would create opportunities for the humanities, arts, and social science community to explore scientific instruments applied to imaging historical artifacts, as well as opportunities for the scientific community to investigate the adaptation of existing web 2.0 technologies to distributed research.



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For font size and page formatting specifications, see GPG section II.B.2.

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Project Summary (not to exceed 1 page)	1	_____
Table of Contents	1	_____
Project Description (Including Results from Prior NSF Support) (not to exceed 15 pages) <b>(Exceed only if allowed by a specific program announcement/solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	8	_____
References Cited	1	_____
Biographical Sketches (Not to exceed 2 pages each)	6	_____
Budget (Plus up to 3 pages of budget justification)	3	_____
Current and Pending Support	5	_____
Facilities, Equipment and Other Resources	3	_____
Special Information/Other Supplementary Docs/Mentoring Plan	0	_____
Appendix (List below. ) <b>(Include only if allowed by a specific program announcement/ solicitation or if approved in advance by the appropriate NSF Assistant Director or designee)</b>	_____	_____
Appendix Items:		

\*Proposers may select any numbering mechanism for the proposal. The entire proposal however, must be paginated. Complete both columns only if the proposal is numbered consecutively.

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## Project Description

The University of Illinois, including the National Center for Supercomputing Applications (NCSA), the School of Art and Design, and the Institute for Computing in Humanities, Arts, and Social Science (I-CHASS), propose to organize a workshop on Cross-Disciplinary Investigation in Imaging and Image Analyses that will facilitate education, training and informational exchange among multiple scientific disciplines including humanities, arts, social science, science, and computational researchers. Organized collaboratively between NCSA, the School of Art and Design, and I-CHASS, this workshop will be uniquely positioned to draw from the varied scientific disciplines listed above. NCSA and I-CHASS have well-documented relationships with their disciplinary user and research-communities and have staged highly successful workshops to seed cross-fertilization, collaboration, and community exchange. Recent workshops and conferences that would be built upon for attendee and presenters include, but are not limited to: Imaging and Image Analyses Applied to Historical Objects (April 2009: 86 participants); Humanities, Arts, and Sciences Technology Advanced Collaboratory annual meetings (April 2009: 205 participants), High Performance Computing: Bio-Informatics Workshop for SC08 (July 2008: 45 participants); Imaging at Illinois at Beckman (October 2009: 29 presenters). Each of these workshops privileged interdisciplinary approaches to humanities, arts, and social science research that demonstrated the importance of advanced computing approaches. The School of Art and Design has attracted many students that cut across humanities, arts and social sciences, and would be well positioned to lead the educational aspects of the proposed workshop.

With such diverse disciplinary communities, this workshop will bring together representatives from US and foreign academic institutions engaged in imaging and imaging analyses. The workshop envisions large-group keynote presentations as well as break-out sessions. Possible topics for inclusion are listed below. We anticipate an audience that will consist of domestic and international researchers as well as University of Illinois students. The students will learn about tools useful for studying imaging and image analyses while the researchers will define joint projects. Before the workshop we will circulate proposal solicitations to encourage participants to team up at the meeting.

### *The need for this workshop*

From challenges related to data acquisition, storage, processing, and visualization to approaches to tool development, the potential for cross-fertilization among humanities, arts, social sciences and the sciences is just beginning to be explored. No matter the domain or subfield, regardless of whether it is clinical and research domains utilizing medical imaging, universe telescope-based imaging, air-borne and ground imaging, satellite imaging, or historical documentary imaging, the challenges related to imaging and image analyses are manifest and common to all researchers and domain-specialists exploring imaging and imaging analysis.

Uniting the multi-disciplinary stakeholders in imaging and imaging analyses, this workshop presents a unique opportunity for cross-fertilizations, cross-collaboration, and information-enchange by using computational inquiries to bridge humanities, arts, and sciences research. Traditional workflows illustrate this compartmentalization and the need for cross-disciplinary exchanges. Scientists in humanities, social sciences and arts go from working in physical spaces to working in digital spaces, digitize historical artifacts via scanning, observe behavior via camera recordings and convey artistic perceptions via graphics. While this process is documented thoroughly, the resulting research generally only manifests in written publications or presentations targeted at their particular domain audience. Rarely do you find a humanities researcher reading the leading journals of computational science. Similarly, the physical sciences

observe phenomena at micro and macro scales over space and time, undertake imaging and image analyses, and report their finding via prominent journals and computing organizations like the *International Journal of Computing* and the IEEE. They too are rarely engaged with humanities, and arts events and publications. This workshop presents the opportunity to elucidate connections between these communities via the imaging and image analyses. Significantly, the lack of forums for cross fertilization of imaging and image analysis efforts and ideas in multiple communities developing relevant technologies is not limited to the United States. Just as U.S. researchers and domain experts are seeking collaborative forums such as the one proposed here, so too are international researchers. As a result, this Workshop on Cross-Disciplinary Investigations into Imaging and Image Analyses will bring together representatives from US and foreign academic institutions interested in the use of 2D and 3D imaging devices and applications of image and video analyses in their domains. In doing so, it will allow for global considerations of approaches to image and imaging analyses and will seed international collaborations for stakeholders across the humanities, arts, social science, science, and technology domains.

### **Workshop theme**

Our intention is to illustrate approaches to imaging and image analyses from the diverse communities of humanities, arts, social science, and computational researchers who would be attending this workshop. In doing so, the pedagogical goal of the workshop will be to understand the challenges associated with imaging and image analyses that common across disciplinary fields, to develop collaborations among user and research-communities, and to cross-fertilize these communities with ideas and strategies from related imaging and image analyses projects. The workshop will emphasize strategies for collaboration and will devote significant attention to development between these communities. While it is not trivial to build such cross-disciplinary bridges, we are confident, given the wide-ranging interest of these communities in developing new approaches and tools for imaging and image analyses, that the workshop these of cross-disciplinary investigations and collaborations via imaging and image analyses will be highly successful.

### **Preliminary list of workshop topics**

We have carefully selected eight topics equally split between HASS researchers focusing on traditional historical materials and new media materials. The topics related to traditional historical materials include 2D scanning and 3D imaging, as well as analyses of 2D scans and 3D historical artifacts. The topics related to new media materials (primarily born digitally) include content-based image or video retrieval, preservation and esthetics of imagery from cognitive, technological and cultural perspectives. In order to cover many perspectives on these topics, we tried to select two speakers per topic that would represent the problem domain and technology perspectives.

Topic:	Speakers and Topics
Imaging: 2D scanning technology	(1) Bob Markley (English Department, UIUC) – Topic: Digitization and optical character recognition of the 18th-century connect manuscripts (2) Richard Marciano (RENCI, University of North Carolina); Topic: T-RACES: Testbed for the Redlining Archives of California's Exclusionary Spaces  Substitute: Valerie Hotchins (UIUC Library); Topic: Digitization

	and study of palimpsests in Rare book collections
Image Analyses: 2D scans	<p>(1) Mike Meredith, University of Sheffield, UK; Topic: Web-based dissemination of large image collections via Virtual Vellum (<a href="http://www.shef.ac.uk/french/research/froissart/vvellum.htm">http://www.shef.ac.uk/french/research/froissart/vvellum.htm</a>)</p> <p>(2) Mara R. Wade (Germanic Languages and Literatures, UIUC) – Renaissance Emblem Books</p> <p>Substitute: Anne D. Hedeman (Art History and Medieval Studies UIUC); Topic: Analyses of Illustrations in Froissart and Shrewsbury manuscripts</p>
Imaging: 3D imaging	<p>(1) Wayne Pittard (Spurlock Museum, UIUC); Topic: InscriptiFact: A Networked Database of Ancient Near Eastern Inscriptions Project</p> <p>(2) Todd Presner (University of California at Los Angeles); Topic: The use of historical images for building HyperCities: Berlin and Los Angeles</p> <p>Substitute: Bruce Zuckerman (University of Southern California); Topic: InscriptiFact:</p>
Image Analyses: 3D content	<p>(1) John Bonnett (Brock University, CA), Topic: 3D Virtual Buildings Project, <a href="http://www.brocku.ca/history/faculty/jbonnett/index.php">http://www.brocku.ca/history/faculty/jbonnett/index.php</a></p> <p>(2) Lisa M. Snyder (the UCLA urban simulation team), Topic: The interactive computer model of the World's Columbian Exposition of 1893</p> <p>Substitute: Geraldine Heng (or Ana Boa-Ventura) (University of Texas), Topic: Clash of Civilizations</p>
Image Analyses: Content-Based Image Retrieval	<p>(1) Dean Rehberger (or Justine Richardson) (MSU); Topic: Understanding 19-20th century quilt imagery; Quilt Photographs (<a href="http://www.quiltindex.org/">http://www.quiltindex.org/</a>)</p> <p>(2) James Wang/ Jia Li (Penn State) Topic: Intelligent media annotations</p> <p>Substitute: Eamonn Keogh, University of California- Riverside, Topic: AI for Understanding Cultural Heritage:</p>
Video analyses: Content-Based Video Retrieval	<p>(1) Sang-Wook Lee; (South Korea, Sogang University), Topic: video in-painting</p> <p>(2) David Forsyth, (CS UIUC); Topic: Building models of animals from video</p> <p>Substitute: Scott Poole, (Communication Dept. UIUC): Topic: Comparison of skype and 3D video based communication</p>
Image and Video Analyses: Preservation	<p>(1) Karen Cariani (WGBH); Topic: media archive migrations</p> <p>(2) Marc Downie, (MIT's Media Lab): Topic: 3D geometry of a location from photographs taken from diverse angles</p> <p>Substitute: Peter Bajcsy, (NCSA/UIUC): Topic: preservation and</p>

	access by keeping file formats current
Esthetics of imagery from cognitive, technological and cultural perspectives	<p>(1) Jer Thorpe or M.Simon Levin, (the Surrey Art Gallery's TechLab, CA): Topic: Glocal (global + local) collaborative and multifaceted digital art project</p> <p>(2) Lisa Nakamora (UIUC); Topic: social behavior and gaming (<a href="http://en.wikipedia.org/wiki/Lisa_Nakamura">http://en.wikipedia.org/wiki/Lisa_Nakamura</a>)</p> <p>Substitute: Kevin Hamilton (UIUC, School of Art and Design), Topic: interpretation of mass production and consumption of imagery</p>

### *Additional potential workshop speakers*

While we will approach the speakers selected above, we have also created a list of additional potential workshop speakers. The final list of workshop speakers would be determined based on the availability of identified candidates as well as from a widely-distributed solicitation of attendees.

#### ***Speakers presenting domain problems:***

- (1) Linne Mooney (University of York, UK ) - Computer Identification of Medieval Scribal Handwriting from the Medieval English Palaeography perspective
- (2) Will Noel (Walters Art Museum in Baltimore); Topic: Multi-spectral Analyses of Archimedes palimpsests
- (3) Pat Seed (University of California at Irvine ); Topic: The Development of Mapping on the West and South Coasts of Africa by Portuguese Navigators and Cartographers from 1434-1504
- (4) Paul Lovejoy (York University, Canada ); Topic: Maps for understanding the African diaspora
- (5) Valerie Hotchins (UIUC Library); Topic: Digitization and study of palimpsests in Rare book collections
- (6) Bonnie Mak (GSLIS UIUC); Topic: Image preservation in the International Research on Permanent Authentic Records in Electronic Systems (InterPARES) Project
- (7) Max Edelson (History Department, University of Virginia) - The History of Colonial British America and the Atlantic World from Historical Maps
- (8) Susan Noakes (University of Minnesota); Topic: Digitization of Italian & French Medieval Manuscripts
- (9) Ray Kea, (History, UC Riverside); Topic: Analyses of pre-colonial West African and Ghanaian economic, cultural, and social history from historical maps.
- (10) Geraldine Heng (English, University of Texas, Austin); Topic: Studies of English medieval manuscripts
- (11) Virginia Khun (University of Southern California, Institute for Multimedia Literacy); Topic: Multimedia analyses
- (12) Nick Barbules (Education policy studies, UIUC); Topic: Ubiquitous learning using multimedia
- (13) Geraldine Heng (or Ana Boa-Ventura) (University of Texas), Topic: Clash of Civilizations
- (14) Jonathan Fineberg (UIUC), Topic: Film making and preservation
- (15) Bill Seaman, Duke University, Topic: media-oriented poetics

- (16) Nancy Turner, associate conservator in the department of paper conservation at the J. Paul Getty Museum ;Topic: pigment analysis and its applications to understandings of workshop practice

***Speakers presenting information technology requirements and prototype solutions:***

- (3) Roger Easton, (Rochester Institute of Technology); Topic: spectral analyses of Archimedes palimpsests
- (4) John Daugman (Cambridge, UK); Topic: Computer Identification of Medieval Scribal Hands
- (5) Ana Boa-Ventura (Communications, University of Texas, Austin); Topic: Images in Virtual worlds
- (6) James Gain (Department of Computer Science, University of Cape Town); Topic: Visualization for the Humanities
- (7) Jose Castro (Costa Rica, CeNAT); Topic: Cluster computing for the Humanities
- (8) Bruno Schultze (Brazil, LNCC); Topic: Grid computing for the Humanities
- (9) Sang-Chul Lee (South Korea, Inha University); Topic: document analyses
- (10) Hany Farid (Dartmouth University), Topic: forensic image analyses
- (11) Michael Toth (Toth associates): Topic: Hyperspectral imaging of Palimpsest
- (12) William H. Mischo (UIUC library), Topic: Preservation of images and multimedia files
- (13) David Stork (Ricoh corporation), Topic: Geometry based modeling of art

***Recent meetings on the same subject, including dates and locations***

There have been efforts over the past two to three years to bring together researchers from the Humanities, Arts, and Social Sciences domains together with the computer scientists and information technologists. These efforts led to projects such as HASTAC [1] and Bamboo [2], as well as to several workshops in which we have participated [3-4]. Additionally, this effort builds on the highly successful NSF sponsored workshop Imaging and Image Analyses Applied to Historical Analyses [5]. Imaging and Image Analyses Applied to Historical Analyses was co-directed by Peter Bajcsy of I-CHASS/NCSA, Anne D. Hedeman, and Karen Fresco of the University of Illinois. Designed to facilitate education, training and information exchange among multiple scientific disciplines, the Imaging and Image Analyses workshop brought together representatives from academic institutions in the United States and abroad and from US museums. Humanists, social scientists, and artists were paired with computer scientists at the workshop in order to present complementary views on topics related to imaging and image analyses of historical objects. The intent of the workshop was to examine the process of going from actual physical objects to digital objects made available via the Internet and the related process of enabling computer assisted learning over large digital collections for education and research. The overarching goal of the workshop was to understand the challenges associated with imaging and image analyses that are inherent in this process, as well as solutions, needs and opportunities for further research. Specific topics covered included: stroke analysis of paintings, historical mapping, emblem books, quilt imagery, multimedia analyses, palimpsest, Virtual Vellum, and manuscripts from the 18th and 19th centuries. Attended by 86 participants, this highly successful workshop generated the formulation of four new research groups on Image and Imaging Analyses as well as the establishment of an Imaging Analyses network for humanities, arts, social science, and technology researchers. This network and these research groups will be leveraged as part of the Cross-Disciplinary Investigations in Imaging and Image Analyses Workshop.

Other conferences have recognized the computational needs for humanities and included sessions on digital humanities, for instance, the eScience conference [6] attended by us most recently. Other international eScience conferences such as the meetings in UK [7] and in Korea [8] have also included digital humanities. The proposed workshop would extend these previously organized efforts but would be much more focused on specific imaging technologies and the related image analysis problems. The uniqueness of the proposed workshop lies in its more focused technical scope while simultaneously bridging the communities of humanities, arts, social science, biomedical, geo-spatial, and computational science.

### ***Workshop organization***

The workshop will run during two days at National Center for Supercomputing Applications and at the University of Illinois. NCSA classrooms can accommodate 60 people for small breakout sessions. Additionally, there are 30-60 person classrooms available at the Siebel Computer Science Building next door. All rooms are equipped with audio-visual equipment and with power extensions for laptops. Auditoriums at NCSA can accommodate 200 people and will allow for simultaneous broadcasting of keynote topics to the web and/or additional locations if needed.

In order to attract a large number of community representatives and aim at the broadest impact, the proposed workshop would be organized by the National Center for Supercomputing Applications and the Institute for Computing in Humanities, Arts, and Social Science at the University. We anticipate each organization leading the involvement of its particular domain-community (e.g. NCSA leading computational sciences, and I-CHASS leading humanities, arts, and social science disciplinary recruitment.) We anticipate 150-200 attendees from the humanities, arts, science and computational community. The funds requested as part of this proposal will be used to support the organization and logistics associated with the humanities, arts, social science and computational community as well as participant costs for those communities.

### ***The names of the chairperson and members of organizing committees and their organizational affiliations:***

Peter Bajcsy, NCSA & I-CHASS, UIUC  
Kevin Hamilton, School of Art and Design, UIUC  
Jennifer Guiliano , I-CHASS, UIUC

### ***Information on the location and probable date(s) of the meeting***

NCSA/UIUC; depending on the funding availability either October – November 2010 or March – April 2011.

### ***Soliciting Workshop Participants and Presenters***

#### ***The method of announcement or invitation:***

We would use the following methods

- Email invitations to individual speakers
- Classroom announcements for University of Illinois students as well as e-mail lists for appropriate University of Illinois groups.

- Web page posting at the NCSA and I-CHASS web pages
- Distribution via mailing lists, professional organization announcement lists and social media outlets

The workshop is expected to have more than 50% participants and speakers from groups that are underrepresented in science and engineering (e.g., underrepresented minorities, women, and persons with disabilities).

To solicit these participants and presenters, the Cross-Disciplinary Investigations in Imaging and Image Analyses Workshop organizers will utilize a custom-designed online submission tool. Built for the Institute for Computing in Humanities, Arts, and Social Science in partnership with the National University Community Research Institute, the online submission tool allows for the web-based collection of data for conference participants including, but not limited to: registration of participants, gathering of biographical statements, resumes, and contact information, submission of presentation abstracts, papers, and other pertinent publications. Additionally, the online submission tool includes a parallel review process that allows conference organizers to: 1) establish panels of reviewers of all conference submissions, 2) conduct a review process using pre-established criteria for selection, 3) a mathematical ordering of conducted reviews that ranks submissions and generates an ordered list of presenters based on their review scores, 4) contact all reviewers and applicants with results, and 5) import/export materials including submissions and reviewer comments in .doc, .pdf, .txt, and .html formats. All of the participant and reviewer functionalities are accessible via an easy-to-use web-based interface. This system has been successfully used by I-CHASS for the 1,000,000 CPU Competition (Spring 2009), the CONICIT-Costa Rica Competition (Fall 2009), HASTAC 2010 (Spring 2010) and will be used in the forthcoming 2,000,000 CPU Competition.

### *Education Activities*

We would like to pursue two educational aims of the proposed workshop. First, it is the workshop attendance and exposure of students to a variety of imaging and image analysis problems. Second, it is the engagement of the students in the follow-up classes and independent studies that would leverage their knowledge gained during the workshop and would entice the students to pursue the hands-on experience with imaging and image analyses.

We would accomplish the first aim by advertizing at UIUC, and the second aim by offering independent studies for students interested in some topics (advertized during the workshop) and by drafting courses like "Computer-aided Photographic Research: Developing Critical Frameworks Through Image Analysis" to enrich the students interested in learning more about the workshop topics. The UIUC units where we plan to advertize include Architecture, Art and Design, Landscape Architecture, Graduate School of Library Information Sciences (GSLIS), Computer Science, Electrical Engineering, Advertising, Journalism, Urban Planning and Media Studies.

### *Dissemination of workshop results*

Findings from this project will be disseminated in traditional and innovative ways. We will encourage and maintain collaboration among participants by creating a web-portal that allows electronic dissemination and maintains a constant web-based presence. The primary goal of the web portal will be to disseminate the experience, presentations and learned lessons. The



secondary goal will be facilitated by the inclusion of web modules embedded in the portal that allows activities tracking (provenance data), collaboration support (including blogs, chat, and wikis), and social networking support. Creating a multi-way networked activity centered on the digital humanities and lessons learned from each project will be disseminated to the wider humanities, academic audience and the general public through our virtual community in addition to the more traditional online papers, journal articles and research reports. Our ambition is to achieve continual and energetic discussion and collaboration for each group and as a collaborative.

The two-day workshop, which will be webcast, will be summarized in a final report. The report will outline long-range technological planning goals that can be undertaken by the partnership of each humanities group with computer scientists. In serving not just invited participants but also scholars and students interested in imaging and imaging analyses, the workshop should achieve the objective to engage in collaboration with colleagues from diverse backgrounds.

We would also like to conduct an evaluation of the workshop via evaluation tools provided by I-CHASS. I-CHASS has evaluated workshops and conferences of a cross-disciplinary nature before and our internal resources would collect data via surveys, content assessment instruments, and interviews over the course of the workshop.

### *Intellectual Merit*

The intellectual merit of Cross-Disciplinary Investigations in Imaging and Imaging Analyses lies in information exchange, cross-disciplinary collaboration, and cross fertilization of on-going and future efforts in the area of imaging and image analyses. For example, the computer science and electrical engineering communities have made significant advances in designing imaging techniques and image analysis algorithms while the HASS digital community has made strides in embracing new multi-media, social networking and web-based technologies. The workshop would create opportunities for the humanities, arts, and social science community to explore scientific instruments applied to imaging historical artifacts, as well as opportunities for the scientific community to investigate the adaptation of existing web 2.0 technologies to distributed research.

### *Broader Impact*

The broader impacts resulting from the proposed workshop are in crossing boundaries of humanities, arts, social science, and computational science disciplines in the applications of imaging and multi-media technologies, cross pollination of ideas on the use of custom developed imaging instruments to other domain applications, and identifying joint research efforts and educational engagement of students in using imaging and image analysis tools.

## References:

- [1] HASTAC (Humanities, Arts, Science, and Technology Advanced Collaboratory) project; sponsored by the McArthur Foundation; URL: <http://www.hastac.org/about>
- [2] Bamboo project; Project Bamboo is an 18-month planning and community design program; URL: <http://projectbamboo.uchicago.edu/about-us>.
- [3] Summer workshop on Computational Methods in the Humanities, Arts, and Social Sciences, August 2007, SDSC, San Diego, CA, <http://www.sc-education.org/wiki/index.php/UCIHRI07#Schedule>
- [4] Summer workshop on High Performance Computing in the Humanities, Arts, and Social Sciences: Information-Rich Environments for Research and Teaching, July 28, 2008 –August 2, 2008, NCSA, Urbana, IL, [http://www.chass.uiuc.edu/Events/Entries/2008/7/27\\_High\\_Performance\\_Computing\\_in\\_the\\_Humanities%2C\\_Arts%2C\\_and\\_Social\\_Sciences%3A\\_Information-Rich\\_Environments\\_for\\_Research\\_and\\_Teaching.html](http://www.chass.uiuc.edu/Events/Entries/2008/7/27_High_Performance_Computing_in_the_Humanities%2C_Arts%2C_and_Social_Sciences%3A_Information-Rich_Environments_for_Research_and_Teaching.html)
- [5] Imaging and Image Analyses Applied to Historical Objects, April 22-23, 2009, University of Illinois. NSF Sponsored.
- [6] The 4th IEEE International Conference on e-Science, December 8-12, 2008, Indianapolis, IN
- [7] The UK eScience All-Hands Meeting, Crossing Boundaries: Computational Science, E-Science and Global E-Infrastructures, 8th - 11th September 2008, Edinburgh, United Kingdom, <http://www.nesc.ac.uk/talks/>.
- [8] The Korea eScience All Hands Meeting, September 8-9, Daejeon Convention Center, Daejeon, Korea, <http://www.ahm.or.kr/>.

## Peter Bajcsy

### a. Professional Preparation.

Slovak Technical University, Bratislava, Czechoslovakia

Major: Technical Cybernetics and Measurement Techniques

Degree & Year: Diploma Engineer, 1987

University of Pennsylvania, Philadelphia, PA

Major: Electrical Engineering

Degree & Year: Master of Science, 1994

University of Illinois, Urbana-Champaign, IL

Major: Electrical and Computer Engineering

Degree & Year: Doctor of Philosophy, 1997

### b. Appointments.

2007 – Present	Associate Director, ICHASS, Illinois Informatics Institute, UIUC
2003 – Present	Adjunct Assistant Professor ECE, UIUC, IL
2002 – Present	Adjunct Assistant Professor CS, UIUC, IL
2001 – Present	Research Scientist NCSA, UIUC, IL
1998 – 2001	Senior Scientist SAIC/DEMACO, Inc., Champaign, IL.
1997 - 1998	Senior Software Engineer Cognex_Corporation, Acumen Products Group, Portland, OR

### c. Publications. (5 Most Closely Related to Proposed Research)

- (1) Bajcsy P., Y-F. Lin, A. Yahja, and C-Y. Kim, "A Framework for Accurate Geospatial Modeling using Image Ranking and Machine Learning," Journal of Hydroinformatics (accepted January 2010).
- (2) McFadden W., R. Kooper, S-C. Lee, and P. Bajcsy, "Comprehensive and Scalable Appraisals of Contemporary Documents," a book chapter in the book on Machine Learning", by IN-TECH – the free online access publishing, ISBN 978-953-7619-X-X, April 2010
- (3) Singh A., B. S. Minsker, and P. Bajcsy, "Image-Based Machine Learning For Reduction Of User-Fatigue In An Interactive Model Calibration System," Journal of Computing in Civil Engineering, 1, 6 (2009), DOI:10.1061/(ASCE)CP.1943-5487.0000026
- (4) Kooper R., A. Shirk, S-C. Lee, A. Lin, R. Folberg and P. Bajcsy, "3D Volume Reconstruction Using Web Services," Elsevier International Journal on Computers in Biology and Medicine, Vol. 38/4, pp 490-500; DOI information: 10.1016/j.compbimed.2008.01.015, 2008
- (5) Lee S-C. and P. Bajcsy, "Three-dimensional Volume Reconstruction Based on Trajectory Fusion from Confocal Laser Scanning Microscope Images," Journal of Computer Vision and Image Understanding 110 (2008) 19–31.

### (Other Significant Publications and Software Systems.)

- (1) Peter Bajcsy and Maryam Moslemi, "Discovering Salient Characteristics of Authors of Art Works," IS&T/SPIE Electronic Imaging, 17 - 21 January 2010, San Jose Convention Center, Section - Computer Vision and Image Analysis of Art, Paper 7531-10 presented on January 18th at 1:20pm
- (2) Malik R. and P. Bajcsy, "Achieving Color Constancy Across Multiple Cameras", ACM International Conference on Multimedia, Beijing, China, October 19 - 24, 2009 (~ 30% acceptance).
- (3) Bajcsy P., K. McHenry, H-J Na, R. Malik, A. Spencer, S-K. Lee, R. Kooper, and M. Frogley, "Immersive Environments For Rehabilitation Activities," ACM International Conference on Multimedia, Beijing, China, October 19 - 24, 2009 (~ 27.5% acceptance).
- (4) Malik R. and P. Bajcsy, "Automated Placement of Multiple Stereo Cameras," OMNIVIS'2008, the Eighth Workshop on Omnidirectional Vision, Camera Networks and Non-classical Cameras held in conjunction with ECCV 2008, Marseille, France, October 12-18th, 2008

- (5) Bajcsy P., S-C. Lee, A. Lin and R. Folberg, “3D Volume Reconstruction of Extracellular Matrix Proteins in Uveal Melanoma from Fluorescent Confocal Laser Scanning Microscope Images,” Journal of Microscopy, Vol. 221, Pt 1 January 2006, pp. 30–45

**d. Synergistic Activities.**

- Reviewer for journals and conferences: Asian Conference on Computer Vision (ACCV 09), International Conference on Machine Learning and Applications (ICMLA 07,08,09), Pattern Recognition (07, 08), IEEE Transactions on Information Forensics and Security (07, 08, 09), Bioinformatics (07, 09), IEEE Signal Processing Letters (07), EURASIP Journal on Applied Signal Processing (06), Journal of Microscopy (06, 08), IEEE Trans. on Intelligent Transportation (07), IEEE Transactions on Medical Imaging (06, 09), IEEE Transactions on Geoscience and Remote Sensing (05, 06, 07), IEEE Geoscience and Remote Sensing Letters (08), and IEEE on Pattern Analysis and Machine Intelligence (04).
- Served on the NIST advisory board for the SHIELD project 03-04; on the NSF Information Technology Research (ITR) Review Panels for Division of Informative Biology and Division of Information & Intelligent Systems, 04 (twice), 05 (once), 09 (once), 10 (twice).
- Served as an associate editor the ACM Transactions on Multimedia Computing Communications and Applications 2010, and a program committee member on the IEEE Workshop on Computer Vision Methods for Bioinformatics (in conjunctions with IEEE CVPR 05), and on the International Conference on Machine Learning and Applications (ICMLA 07 & 08).
- Contributions to the science of learning; Collaborates with humanists, artists, social scientists, earth scientists, engineers, citizens with disabilities, clinicians in hospitals, biologists, neuroscientists, psychologists and veterinary medicine experts on X-informatics problems.

**e. Collaborators & Other Affiliations**

**(i) Collaborators.**

Scott Poole, Department of Communication, UIUC, IL

Anne D. Hedeman, School of Arts and Design, UIUC, IL

Klara Nahrstedt, Department of Computer Science, UIUC, IL

Amelia Bartholomew, Dept of Surgery, University of Illinois, Chicago, IL;

Barbara Minsker, Department of Civil and Environmental Engineering, UIUC, IL.

Yu-Feng Lin, Illinois State Water Survey, Champaign, IL;

Jiawei Han, Department of Computer Science, UIUC, IL;

Robert Folberg, Oakland University William Beaumont School of Medicine, Rochester, MI

**(ii) Graduate and Postdoctoral Advisors.**

MS Thesis Advisor: Sallem Kassam, Department of Electrical Engineering, UPENN, Philadelphia, PA

PhD Thesis Advisor: Narendra Ahuja, Department of Electrical and Computer Engineering, UIUC, IL

**(iii) Thesis Advisor and Postgraduate-Scholar Sponsor.**

**Completed/Current Ph.D. – 1/2; M.S. – 8/0, undergraduate students 20/1**

Peter Groves (M.S. 12/2003), Technical Consultant at Moiret, Chicago, IL; Sunayana Saha (M.S.

12/2003), Citadel Investment Group, Chicago, IL.; David Scherba (M.S. 05/2005), Qualcomm, Denver,

CO.; Wei-Wen Feng (M.S. 05/2006), PhD, UIUC; Sang-Chul Lee (PhD 05/2006), Professor, Inha

University, Korea; Miles Johnson (M.S. 12/2007), PhD student, UIUC; Shadi Ashnai (M.S. 12/2007),

Wolfram Research, Champaign, IL; Chandra Ramachandran (M.S. 12/2009), Qualcomm, CA.

**Jennifer E. Guiliano, Ph.D.**

Post-Doctoral Research Assistant  
Institute for Computing in Humanities, Arts, and Social Science  
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**Professional Preparation**

Miami University, History and English Literature, *B.A.*, 2000  
Miami University, History, *M.A.*, 2002  
University of Illinois, History, *M.A.*, 2004  
University of Illinois, History, *Ph.D.*, 2010

**Academic Experience**

Post Doctoral Research Assistant, Institute for Computing in Humanities, Arts, and Social Science (I-CHASS), National Center for Supercomputing Applications, January 16, 2010- July 15, 2010.  
Graduate Assistant, Institute for Computing in the Humanities, Arts, and Social Science (I-CHASS), National Center for Supercomputing Applications, January 2008- January 2010.  
Lecturer, Department of History, History 273: Illinois History, June 2008 to August 2008.  
Graduate Teaching Assistant, Department of History, August 2007 to December 2007, August 2003 to August 2004, August 2002 to December 2002.  
Graduate Research Assistant, Department of History, August 2006 to December 2006, May 2003- May 2008.  
Lecturer, Department of History, History 172/173: History of the United States, 1877 to the Present, June 2006 to August 2006.  
Graduate Assistant, Department of History, January 2005 to May 2006, August 2004 to May 2005  
Graduate Assistant, American Indians of Illinois Online, Dr. Brenda Farnell, Department of Anthropology, June 2003 to August 2003.  
Graduate Assistant, Native American House, December 2002 to May 2003.

**Honors, Awards, Notable Achievements**

*Graduate Student Essay Award*, North American Society for Sport History, Thirtieth Annual Conference, French Lick, IN, May 2002.  
University of Illinois at Urbana-Champaign student recipient of the 2003 Committee on Institutional Cooperation selective seminar on "Nineteenth-Century Native American Representations," at the D'Arcy McNickle Center for American Indian Studies at the Newberry Library, under the direction of Susan Sleeper-Smith, Michigan State University.  
*Incomplete List of Teaching Excellence*, Fall 2002, Fall 2007, Summer 2008. University of Illinois at Urbana-Champaign.  
Department of History Fellowship, University of Illinois at Urbana-Champaign, August 2005 to December 2005.  
Department of History Fellowship, University of Illinois at Urbana-Champaign, January 2007 to May 2007.

**Selected Publications**

"Creating Tradition and Defining "Indianness", *Studies in Symbolic Interaction* 34 (2010)(London: Emerald Group Publishing, 2010).  
"Chasing Objectivity? Critical Reflections on History, Identity, and the Public Performance of Indian

Mascots.” (Publication Pending in *International Review of Qualitative Research*, special issue on Sport and Auto-Ethnography, edited by Michael Giardina.)

Co-author, Test Bank and Instructor’s Resource Manual, in *The People: A History of Native America*, authored by Dr. Frederick Hoxie, R. David Edmunds, and Neil Salisbury.

“Questioning Indians on the Field: Native Americans, Sports Mascots, and the Education of Whiteness.” (Publication Pending in *The Journal of Sport and Social Issues*, edited by C.L. Cole and Adrian Burgos.)

### **Collaborators and Affiliations**

Simon Appleford, Institute for Computing in Humanities, Arts, and Social Science

Peter Bajcy, National Center for Supercomputing Applications

Alan Craig, Institute for Computing in Humanities, Arts, and Social Science

Kevin Franklin, Institute for Computing in Humanities, Arts, and Social Science

Kevin Hamilton, University of Illinois

David Miller, University of South Carolina

Marshall Scott Poole, Institute for Computing in Humanities, Arts, and Social Science

Alex Yahja, Institute for Computing in Humanities, Arts, and Social Science

## Kevin Hamilton

### a. Professional Preparation.

Rhode Island School of Design, Providence RI

Major: Painting

Degree & Year: Bachelor of Fine Arts, 1996

Massachusetts Institute of Technology

Major: Visual Studies

Degree & Year: Master of Science, 2000

### b. Appointments.

2006 – Present Program Chair, New Media, School of Art and Design, UIUC, IL  
2002 – Present Associate Professor, New Media, School of Art and Design, UIUC, IL  
2001 – 2002 Visiting Instructor, Art Program, Grand Valley State University, MI  
2000 – 2001 Adjunct Instructor, Gordon College, MA  
1999 – 2002 Summer Instructor, Rhode Island School of Design, Providence, RI

### c. Publications. (5 Most Closely Related to Proposed Research)

- (1) Hamilton K., N. O’Gorman, "Nuclear Memory at the Interface," *Sighting Memory: The Intersection of Visual Practices and Practices of Memory*, Anne Demo and Brad Vivian ed. (Forthcoming book chapter.)
- (2) Hamilton K., L. Nakamura, "Return of the Digital Native: Interfaces, access and racial difference in *District 9*," *FlowTV* v. 11.12, March 2010.
- (3) Hamilton K., N. O’Gorman, "At the Interface: The Loaded Rhetorical Gestures of Nuclear Legitimacy and Illegitimacy," co-authored with Ned O’Gorman. Forthcoming in *Communication and Critical/Cultural Studies*.
- (4) Sharmin, Bailey, Coats, Hamilton, "Understanding Knowledge Management Practices for Early Design Activity," *Proceedings of the 2009 ACM/Human-Computer Interaction Conference*
- (5) Adamczyk P, K.Hamilton "Urban Computing and Mobile Devices," *IEEE Distributed Systems Online*, vol. 8, no. 7, 2007.

### (Recent Art Exhibitions)

- (1) "BCL/IGB." Illinois State Arts commission, Institute for Genomic Biology, UIUC (budget: \$35,000).
- (2) "I will lift up mine eyes unto the hills." Performance for DIRT Festival, Links Hall Chicago.
- (3) "On Location." *Blackbird* online journal of literature and the arts, Virginia Commonwealth University.
- (4) "Chronozone 4." project for Mobile Studios in Bratislava, Budapest and Sofia.
- (5) "Department of Rhythmanalysis." Gahlberg Gallery, College of DuPage. Glen Ellyn, IL.

### (Recent Awards and Fellowships)

- (1) NEH/Vectors Fellowship, IML University of Southern California (Summer 2010)
- (2) Fellow, Cornell University Society for the Humanities (2009-10, declined).
- (3) *Empyre* workshop scholarship, Anderson Ranch Arts Center, Colorado, 2008.
- (4) *Reference Check* research residency, Banff New Media Institute, Calgary, Canada, 2007.
- (5) Illinois Arts Council Fellowship - Interdisciplinary Category, 2007. (\$7000)

### d. Synergistic Activities.

- Workshop Co-organizer, *HCI and New Media: Evaluation + Methodology*. Association of Computing Machinery / Computer-Human Interaction Conference, San Jose, CA. 2007.
- Workshop Co-organizer, *Tools in Support of Creative Collaboration*. Association of Computing Machinery / Creativity and Cognition Conference, Washington, DC. 2007.

- Symposium Co-Coordinator, *Walking as Knowing as Making: A Peripatetic Examination of Place*. University of Illinois. 2006
- Contributions to New Media Education: Conducts workshops and lectures on visual imaging for Research Groups in the sciences, humanities and social sciences. Developed and administers a new undergraduate program in New Media Art.
- Contributions to interdisciplinary scholarship: Has organized graduate-level courses on collaborative cross-disciplinary design problems. Studied creativity and conducted surveys of practitioners in the arts and sciences.

#### **e. Collaborators & Other Affiliations**

##### **(i) Collaborators.**

Weimo Zhu, Department of Kinesiology, UIUC, IL  
 Ned O’Gorman, Department of Communication, UIUC, IL  
 Brian Bailey, Department of Computer Science, UIUC, IL  
 Piotr Adamczyk, Metropolitan Museum of Art, New York  
 M.Simon Levin, University of British Columbia, Vancouver.

##### **(ii) Graduate and Postdoctoral Advisors.**

n/a

##### **(iii) Thesis Advisor and Postgraduate-Scholar Sponsor.**

**Completed/Current Ph.D. – 1/0; M.F.A. – 15/0**

Celiany Rivera, PhD Candidate, Institute of Communication Research  
 MFA New Media:

Bobby Belote *2010*  
 Ashwyn Collins *2010*  
 Heather Ault *2010*  
 Skot Wiedmann *2009*  
 Collin Bradford *2008*  
 Matthew Yapchaian *2007*  
 Rose Marshack *2005*  
 Katerie Gladdys *2005*

MFA Sculpture:

Katie Latona *2010*  
 Karin Hodgins Jones *2008*  
 Jennifer Danos *2004*

MFA Painting:

J. Meredith Warner *2005*  
 David Prinsen *2004*  
 Sarah Kanouse *2004*  
 Anna Callahan *2003*



# SUMMARY PROPOSAL BUDGET

YEAR 1

ORGANIZATION <b>University of Illinois at Urbana-Champaign</b>				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Peter Bajcsy</b>				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
				CAL	ACAD	SUMR	
1. <b>Peter Bajcsy - PI</b>				0.20	0.00	0.00	\$ 1,540
2. <b>Jennifer Guiliano - Co-PI</b>				0.20	0.00	0.00	846
3. <b>Kevin Hamilton - Co-PI</b>				0.00	0.00	0.20	1,336
4.							
5.							
6. ( 0 ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)				0.00	0.00	0.00	0
7. ( 3 ) TOTAL SENIOR PERSONNEL (1 - 6)				0.40	0.00	0.20	3,722
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. ( 0 ) POST DOCTORAL SCHOLARS				0.00	0.00	0.00	0
2. ( 1 ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)				0.20	0.00	0.00	854
3. ( 0 ) GRADUATE STUDENTS							0
4. ( 0 ) UNDERGRADUATE STUDENTS							0
5. ( 0 ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)							0
6. ( 0 ) OTHER							0
TOTAL SALARIES AND WAGES (A + B)							4,576
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							1,505
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)							6,081
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT							0
E. TRAVEL 1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)							0
2. FOREIGN							0
F. PARTICIPANT SUPPORT COSTS							
1. STIPENDS \$ 3,000							
2. TRAVEL 15,566							
3. SUBSISTENCE 6,000							
4. OTHER 6,000							
TOTAL NUMBER OF PARTICIPANTS ( 150 )							
TOTAL PARTICIPANT COSTS							30,566
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES							2,250
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION							1,250
3. CONSULTANT SERVICES							2,500
4. COMPUTER SERVICES							180
5. SUBAWARDS							0
6. OTHER							0
TOTAL OTHER DIRECT COSTS							6,180
H. TOTAL DIRECT COSTS (A THROUGH G)							42,827
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
<b>MTDC (Rate: 58.5000, Base: 12261)</b>							
TOTAL INDIRECT COSTS (F&A)							7,173
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							50,000
K. RESIDUAL FUNDS							0
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)							\$ 50,000
M. COST SHARING PROPOSED LEVEL \$ 0				AGREED LEVEL IF DIFFERENT \$			
PI/PI NAME <b>Peter Bajcsy</b>				FOR NSF USE ONLY			
ORG. REP. NAME*				INDIRECT COST RATE VERIFICATION			
				Date Checked	Date Of Rate Sheet	Initials - ORG	

# SUMMARY PROPOSAL BUDGET

Cumulative

ORGANIZATION <b>University of Illinois at Urbana-Champaign</b>				FOR NSF USE ONLY			
				PROPOSAL NO.	DURATION (months)		
PRINCIPAL INVESTIGATOR / PROJECT DIRECTOR <b>Peter Bajcsy</b>				AWARD NO.	Proposed	Granted	
A. SENIOR PERSONNEL: PI/PI, Co-PI's, Faculty and Other Senior Associates (List each separately with title, A.7. show number in brackets)				NSF Funded Person-months		Funds Requested By proposer	Funds granted by NSF (if different)
				CAL	ACAD	SUMR	
1. <b>Peter Bajcsy - PI</b>				0.20	0.00	0.00	\$ <b>1,540</b>
2. <b>Jennifer Guiliano - Co-PI</b>				0.20	0.00	0.00	<b>846</b>
3. <b>Kevin Hamilton - Co-PI</b>				0.00	0.00	0.20	<b>1,336</b>
4.							
5.							
6. ( ) OTHERS (LIST INDIVIDUALLY ON BUDGET JUSTIFICATION PAGE)				0.00	0.00	0.00	<b>0</b>
7. ( <b>3</b> ) TOTAL SENIOR PERSONNEL (1 - 6)				0.40	0.00	0.20	<b>3,722</b>
B. OTHER PERSONNEL (SHOW NUMBERS IN BRACKETS)							
1. ( <b>0</b> ) POST DOCTORAL SCHOLARS				0.00	0.00	0.00	<b>0</b>
2. ( <b>1</b> ) OTHER PROFESSIONALS (TECHNICIAN, PROGRAMMER, ETC.)				0.20	0.00	0.00	<b>854</b>
3. ( <b>0</b> ) GRADUATE STUDENTS							<b>0</b>
4. ( <b>0</b> ) UNDERGRADUATE STUDENTS							<b>0</b>
5. ( <b>0</b> ) SECRETARIAL - CLERICAL (IF CHARGED DIRECTLY)							<b>0</b>
6. ( <b>0</b> ) OTHER							<b>0</b>
TOTAL SALARIES AND WAGES (A + B)							<b>4,576</b>
C. FRINGE BENEFITS (IF CHARGED AS DIRECT COSTS)							<b>1,505</b>
TOTAL SALARIES, WAGES AND FRINGE BENEFITS (A + B + C)							<b>6,081</b>
D. EQUIPMENT (LIST ITEM AND DOLLAR AMOUNT FOR EACH ITEM EXCEEDING \$5,000.)							
TOTAL EQUIPMENT							<b>0</b>
E. TRAVEL							
1. DOMESTIC (INCL. CANADA, MEXICO AND U.S. POSSESSIONS)							<b>0</b>
2. FOREIGN							<b>0</b>
F. PARTICIPANT SUPPORT COSTS							
1. STIPENDS \$ _____ <b>3,000</b>							
2. TRAVEL _____ <b>15,566</b>							
3. SUBSISTENCE _____ <b>6,000</b>							
4. OTHER _____ <b>6,000</b>							
TOTAL NUMBER OF PARTICIPANTS ( <b>150</b> )							
TOTAL PARTICIPANT COSTS							<b>30,566</b>
G. OTHER DIRECT COSTS							
1. MATERIALS AND SUPPLIES							<b>2,250</b>
2. PUBLICATION COSTS/DOCUMENTATION/DISSEMINATION							<b>1,250</b>
3. CONSULTANT SERVICES							<b>2,500</b>
4. COMPUTER SERVICES							<b>180</b>
5. SUBAWARDS							<b>0</b>
6. OTHER							<b>0</b>
TOTAL OTHER DIRECT COSTS							<b>6,180</b>
H. TOTAL DIRECT COSTS (A THROUGH G)							<b>42,827</b>
I. INDIRECT COSTS (F&A)(SPECIFY RATE AND BASE)							
TOTAL INDIRECT COSTS (F&A)							<b>7,173</b>
J. TOTAL DIRECT AND INDIRECT COSTS (H + I)							<b>50,000</b>
K. RESIDUAL FUNDS							<b>0</b>
L. AMOUNT OF THIS REQUEST (J) OR (J MINUS K)							\$ <b>50,000</b> \$
M. COST SHARING PROPOSED LEVEL \$ <b>0</b>				AGREED LEVEL IF DIFFERENT \$			
PI/PI NAME <b>Peter Bajcsy</b>				FOR NSF USE ONLY			
ORG. REP. NAME*				INDIRECT COST RATE VERIFICATION			
				Date Checked	Date Of Rate Sheet	Initials - ORG	

C \*ELECTRONIC SIGNATURES REQUIRED FOR REVISED BUDGET

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

BUDGET JUSTIFICATION

Principal Investigator: Peter Bajcsy

Period: 9/1/10 – 8/31/10

- |  | Project Dollars |
|--|-----------------|
| <b>A. Senior Personnel</b>   | <b>\$3,722</b>  |
| Salary support of 0.20 months is requested for the PI, Peter Bajcsy, & Co-PI's, Jennifer Guiliano & Kevin Hamilton to prepare, execute and document the workshop. Salaries are based on actual UIUC AY2010 rates and are incremented at a rate of 3.0% each year.  |                 |
| <b>B. Other Personnel</b>  | <b>\$854</b>    |
| Salary support of 0.20 months is requested for project manager Simon Appleford to assist with multimedia needs, ordering food, and travel and hotel arrangements. Salaries are based on actual UIUC AY2010 rates and are incremented at a rate of 3.0% each year.  |                 |
| <b>C. Fringe Benefits</b>  | <b>\$1,505</b>  |
| Fringe benefits are charged at a rate of 32.88% on faculty and postdoc salaries. Benefits include retirement, worker's compensation, health, life and dental insurance, termination, and Medicare. Fringe benefits are charged at a rate of 4.49% on graduate student salaries. Benefits include worker's compensation and health, life and dental insurance.  |                 |
| <b>F. Participant Costs/Workshop</b>   | <b>\$30,566</b> |
| For the two day workshop, we anticipate between 60 to 120 participants based on last year's attendance figures. The selected invited speakers listed in the proposal would be reimbursed for their travel costs (up to \$750 for domestic and \$1250 for international travelers) and we would provide 3 nights hotel for the invited speakers. During the workshop, all registered participants would receive workshop materials, refreshments during the breaks and boxed lunches. |                 |
| <b>G. Other Direct Costs</b>   | <b>\$6,180</b>  |
| <u>Materials and Supplies:</u> Funds budgeted for materials and supplies will cover the expendable supplies and equipment needed to conduct the research program and include items that are normally required to operate a research program.   |                 |
| <u>Publication Costs:</u> This includes the estimated cost of preparing and publishing project results.  |                 |
| <u>Consultant Services:</u> Funds are requested to support the participation of Registration System to manage abstract submissions, review process and electronic posting of workshop information.   |                 |
| <u>Computer Services:</u> NCSA assesses a standard fee to support infrastructure support costs and retrieval of scientific and technical information. The established computer service rate at NCSA is \$225.00 per month per employee. The NCSA infrastructure support fee is currently under review by campus officials.   |                 |
| <b>I. Indirect Costs</b>   | <b>\$7,173</b>  |
| Indirect costs are assessed at a rate of 58.5% of Modified Total Direct Costs (MTDC). MTDC is direct costs less equipment, tuition remission, and subawards in excess of \$25,000.   |                 |

## Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Peter Bajcsy (Page 1 of 3)	Other agencies (including NSF) to which this proposal has been/will be submitted. None
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Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: CDI-Type II: Sensor Web Workbench for Coupled Human-Natural Systems  Source of Support: NSF Total Award Amount: _____ Total Award Period Covered: 9/1/10-8/31/14 Location of Project: University of Illinois Urbana Champaign Person-Months Per Year Committed to the Project. _____ Cal: 3.0 Acad: _____ Sumr: _____
--

Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Collaborative Research: CI-TEAM Implementation Project Contributing to Peace and Non-Violence through Classroom and Service Learning-based Cyberinfrastructure Source of Support: NSF Collaborative Total Award Amount: \$344,149 Total Award Period Covered: 1/1/2011 – 12/31/2012 Location of Project: University of Illinois at Urbana-Champaign Person-Months Per Year Committed to the Project. _____ Cal: 0.5 Acad: _____ Sumr: _____
--

Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: HCC: Collaborative Research: PHYSNET: Physical Interaction Using the Internet Source of Support: National Science Foundation Total Award Amount: \$900,000 Total Award Period Covered: 2/1/07 – 1/31/10 Location of Project: University of Illinois Person-Months Per Year Committed to the Project. _____ Cal: 0.25 Acad: _____ Sumr: _____
---

Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Cross-Disciplinary Investigations in Imaging and Image Analyses: An NSF-Sponsored Workshop Source of Support: NSF EAGER Total Award Amount: \$50,000 Total Award Period Covered: 09/01/2010 - 08/31/2011 Location of Project: University of Illinois at Urbana-Champaign Person-Months Per Year Committed to the Project. _____ Cal: 0.2 Acad: _____ Sumr: _____
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Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Digging into image data to answer authorship related questions  Source of Support: NSF Total Award Amount: \$100,000 Total Award Period Covered: 01/01/2010 till 03/30/2011 Location of Project: UIUC Person-Months Per Year Committed to the Project. _____ Cal: 0.1 Acad: _____ Sumr: _____
---

Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support Project/Proposal Title: Collaborative Research: CDI-Type II: Groupscope: Instrumenting Research on Interaction Networks in Complex Social Contexts; Source of Support: NSF Total Award Amount: \$1,761,568 Total Award Period Covered: 1/1/2010-12/31/2014 Location of Project: NCSA/UIUC Person-Months Per Year Committed to the Project. _____ Cal: 2.0 Acad: _____ Sumr: _____
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\*If this project has previously been funded by

## Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.			
Investigator: Peter Bajcsy (page 2 of 3)	Other agencies (including NSF) to which this proposal has been/will be submitted. None		
Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support	Project/Proposal Title: HCC: Small:The Interplay Between Objects Born in Physical and Virtual Spaces, and Integrated in Tele-immersive Environments		
Source of Support: NSF			
Total Award Amount: 499,999		Total Award Period Covered: 8/1/2010 – 7/31/2013	
Location of Project: University of Illinois at Urbana-Champaign			
Person-Months Per Year Committed to the Project. Cal: 2.0 Acad: Sumr:			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support	Project/Proposal Title: High Performance Computing Collaboratory (Institutes for Advanced Topics Grant)		
Source of Support: National Endowment for the Humanities			
Total Award Amount: \$249,997		Total Award Period Covered: 09/01/2008-08/31/2009	
Location of Project: University of Illinois Urbana Champaign			
Person-Months Per Year Committed to the Project. Cal: 0.5 Acad: Sumr:			
Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support	Project/Proposal Title: Challenge Grant		
Source of Support: National Endowment for the Humanities			
Total Award Amount: \$750,000		Total Award Period Covered: 01/01/2009-01/01/2012	
Location of Project: University of Illinois Urbana Champaign			
Person-Months Per Year Committed to the Project. Cal: 6.0 Acad: Sumr:			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support	Project/Proposal Title: III:Small: Medieval Unicorn: Toward Enhanced Understanding of Virtual Manuscripts on the Grid in the Twenty-First Century		
Source of Support: National Science Foundation			
Total Award Amount: \$120,860		Total Award Period Covered: 01/01/2009-12/31/2009	
Location of Project: University of Illinois Urbana Champaign			
Person-Months Per Year Committed to the Project. Cal: 1.0 Acad: Sumr:			
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support	Project/Proposal Title: Project/Proposal Title: Understanding Computational Requirements of Preservation and Reconstruction		
Source of Support: NARA			
Location of Project: University of Illinois		Total Award Period Covered: 08/16/2008-08/15/2009	
Person-Months Per Year Committed to the Project. Cal: 6.0 Acad: Sumr:			
*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.			

## Current and Pending Support

**(See GPG Section II.D.8 for guidance on information to include on this form.)**

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

Investigator: Peter Bajcsy (page 3 of 3)	Other agencies (including NSF) to which this proposal has been/will be submitted. None
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Support:	<input type="checkbox"/> Current	<input checked="" type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title: RI: Small: Toward High Quality 3D Interactive Communication Using Teleimmersive Environments				
Source of Support: NSF				
Total Award Amount: 499,999		Total Award Period Covered: 8/1/2010 – 7/31/2013		
Location of Project: University of Illinois at Urbana-Champaign				
Person-Months Per Year Committed to the Project.		Cal: 2.0	Acad:	Sumr:

Support:	<input type="checkbox"/> Current	<input checked="" type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title: Algorithms for the Humanities: An Institute in Computational Thinking and Methods for Humanities Scholarship				
Source of Support: National Endowment for the Humanities				
Total Award Amount: \$124,564		Total Award Period Covered: 07/01/2010 – 06/30/2010		
Location of Project: University of Illinois at Urbana-Champaign				
Person-Months Per Year Committed to the Project.		Cal: 0.5	Acad:	Sumr:

Support:	<input type="checkbox"/> Current	<input checked="" type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title: The Digital Humanities Toolkit: Plug and Play GIS for Humanities-Users				
Source of Support: NEH				
Total Award Amount: \$50,000		Total Award Period Covered: 09/1/2010 – 08/31/2011		
Location of Project: University of Illinois at Urbana-Champaign				
Person-Months Per Year Committed to the Project.		Cal: 0.5	Acad:	Sumr:

Support:	<input type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:

Support:	<input type="checkbox"/> Current	<input type="checkbox"/> Pending	<input type="checkbox"/> Submission Planned in Near Future	<input type="checkbox"/> *Transfer of Support
Project/Proposal Title:				
Source of Support:				
Total Award Amount: \$		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:

\*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

## Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.				
Investigator: Guiliano, Jennifer			Other agencies (including NSF) to which this proposal has been/will be submitted.	
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Project/Proposal Title:				
<b>Digging into Data to Answer Authorship Related Questions</b>				
Source of Support: NSF				
Total Award Amount: \$100,000		Total Award Period Covered: 01/01/2010 till 03/30/2011		
Location of Project: University of Illinois at Urbana-Champaign				
Person-Months Per Year Committed to the Project.    7.6		Cal: 1.0	Acad:	Sumr:
Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Resubmission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Project/Proposal Title:				
Cross-Disciplinary Investigations in Imaging and Image Analyses: An NSF-Sponsored Workshop				
Source of Support: NSF EAGER				
Total Award Amount: \$50,000		Total Award Period Covered: 9/1/2010 – 8/31/2011		
Location of Project: University of Illinois at Urbana-Champaign				
Person-Months Per Year Committed to the Project.		Cal: 0.2	Acad:	Sumr:
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Project/Proposal Title:				
Source of Support:				
Total Award Amount:		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Resubmission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Source of Support:				
Total Award Amount:		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support				
Source of Support:				
Total Award Amount:		Total Award Period Covered:		
Location of Project:				
Person-Months Per Year Committed to the Project.		Cal:	Acad:	Sumr:
*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.				



## Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.			
Investigator: Hamilton, Kevin	Other agencies (including NSF) to which this proposal has been/will be submitted.		
Support: <input type="checkbox"/> Current <input checked="" type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: <b>Cross-Disciplinary Investigations in Imaging and Image Analyses</b>			
Source of Support: NSF			
Total Award Amount: \$50,000		Total Award Period Covered: 9/1/2010-8/31/2011	
Location of Project: University of Illinois at Urbana-Champaign			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
		Sumr:	0.20
Support: <input checked="" type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Resubmission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: <b>SoD-TEAM: Developing Computational Tools that Facilitate Individual and Group Creativity</b>			
Source of Support: NSF			
Total Award Amount: \$742,405		Total Award Period Covered: July 27,2006 – July 31, 2010	
Location of Project: University of Illinois, Urbana-Champaign			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
		Sumr:	
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: .....			
Source of Support:			
Total Award Amount:		Total Award Period Covered:	
Location of Project: University of Illinois at Urbana-Champaign			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
		Sumr:	
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Resubmission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: .....			
Source of Support:			
Total Award Amount:		Total Award Period Covered:	
Location of Project:			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
		Sumr:	
Support: <input type="checkbox"/> Current <input type="checkbox"/> Pending <input type="checkbox"/> Submission Planned in Near Future <input type="checkbox"/> *Transfer of Support			
Project/Proposal Title: .....			
Source of Support:			
Total Award Amount:		Total Award Period Covered:	
Location of Project:			
Person-Months Per Year Committed to the Project.		Cal:	Acad:
		Sumr:	
*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.			





## **L. Facilities, Equipment and Other Resources**

NCSA continues to support user communities by offering the resources that are the foundations of advanced cyberinfrastructure. The total computational resources exceed 43 TF supported by over 1 PB of disk storage as part of the infrastructure. The systems are on an internal 10GbE network. Below is a summary of those resources.

### **NCSA Compute Resources**

#### *Dell Intel® 64 Tesla Cluster [lincoln]*

Lincoln consists of 192 compute nodes (Dell PowerEdge 1950 dual-socket nodes with quad-core Intel Harpertown 2.33GHz processors and 16GB of memory) and 96 NVIDIA Tesla S1070 accelerator units. Each Tesla unit provides 345.6 gigaflops of double-precision performance and 16GB of memory.

#### *Dell Intel® 64 Cluster [abe]*

Peak performance: 89.47 TF (62.68 TF sustained)

Top 500 list debut: #8 (June 2007)

This Dell blade system has 1,200 PowerEdge 1955 dual socket, quad core compute blades, an InfiniBand interconnect and 400 TB of storage in a Lustre filesystem. Abe is a shared resource that is 60% allocated through the National Science Foundation allocation process, with the remaining time allocated at the discretion of the NCSA leadership to serve state of Illinois, University of Illinois strategic initiatives, and NCSA's Private Sector Program Partners.

#### *SGI Altix [cobalt]*

1,024 Intel Itanium 2 processors

Peak performance: 6.55 TF (6.1 TF sustained)

Top 500 list debut: #48 (June 2005)

Updated peak performance August 2008: 8.2 TF

The SGI Altix consists of several Intel Itanium 2 processor shared-memory systems running the Linux operating system. Note: This resource will be retired on March 31 2010.

#### *IBM IA-64 Linux Cluster [mercury]*

1,774 Intel Itanium 2 1.3/1.5 GHz processors, 4 GB and 12 GB memory/node

Peak performance: 10.23 TF (7.22 TF sustained)

Top 500 list debut: #15 (June 2004)

The IA-64 TeraGrid cluster consists of 887 IBM dual processor Itanium 2 nodes, running SuSE Linux and Myricom's Myrinet cluster interconnect network. Note: This resource will be retired on March 31 2010.

#### *Mass Storage System (MSS)*

NCSA's hierarchical archival storage system is available for permanent storage of data. Access is via the FTP and SSH based transfer clients, including GridFTP clients. NCSA's mass storage now holds more than six petabytes of data and has the capacity to archive ten petabytes of data.

## **Infrastructure SAN**

284 TB of SAN connected storage for infrastructure and special projects.

## **High-Performance Network**

All computing platforms are interconnected to a multi-10gigabit network core. The NCSA high-performance computing environment has access to the Abilene high-performance network through a shared 10-gigabit-per-second connection. NCSA also is one of the leading sites for I-WIRE, an optical networking project funded by the state of Illinois. I-WIRE provides lambda services for several projects, including NCSA's 30-gigabit-per-second connection to the TeraGrid network.

## **Display Systems**

*Tiled Display Wall:* This environment consists of 40 NEC VT540 projectors, arranged in a matrix 5 high and 8 across. The output of the NEC VT540s is rear-projected towards a single screen, creating a large-format, high-resolution image space that is 8192 x 3840 pixels. A 40-node PC Linux cluster is used to drive the display wall. The machines are dual-processor Intel Xeons, running at 2.4 GHz, with Nvidia FX 5800 Ultra graphics accelerator cards, and communicating over Myrinet.

*High Definition Passive Stereo Theater:* The NCSA High Definition Passive Stereo Theater is a 1920x1080 display on an 6' x 3'5" screen. The projectors used are JVCD-1LA. The display is driven by a dual AMD Opteron 242 processor running at 1.6 GHz. Graphics hardware consists of a Nvidia Quadro FX3000.

## **Applications Software**

NCSA offers a variety of third-party applications and community codes that are installed on the high-performance systems at NCSA. These applications cover a wide range of science and engineering domains, data analytics and visualization, mathematics and statistics. Complete information on the packages available and detailed descriptions of them are available at:

<http://hpcsoftware.ncsa.uiuc.edu/Software/user/index.php?view=NCSA>.

## **Additional sensor and imaging laboratory equipment in the image spatial data analysis (ISDA) group**

ISDA NCSA also operated a variety of sensor and imaging devices for laboratory experiments. The list of the equipment is provided below:

- Hyperspectral camera by Opto-Knowledge Systems Inc.,
- Multispectral camera MS2150 by DuncanTech,
- Thermal infrared cameras, model Omega manufactured by Indigo Systems Corporation,
- Network Color Camera SNC-RZ30N PTZ Pan/Tilt/Zoom by Sony,
- Wireless miniature color cameras by Samsung,
- Wireless MICA sensors with multiple configurations of sensor boards by Crossbow Inc.,
- Pioneer 2 robot (P2 DX8) by ActivMedia Robotics,
- AmigoBot by Media Robotics
- Wireless audio sensors by Audio-technica Corp.,
- IS-300 Pro Precision Motion Tracker by InterSense,

- Bright field microscope by Bausch & Lomb with Sony camera,
- JTAG in-circuit emulator for testing MICA sensors.
- Multiple clusters of Point Grey visible spectrum cameras that are connected to quad core PCs to achieve real-time 3D reconstruction of a scene.
- 52" LCD displays
- Several tripods and TV cart to enable portable deployment of cameras
- Two wii controls for view control in 3D virtual space.
- TYZX stereo cameras

The School of Art and Design at University of Illinois offers the campus a base of operations for instruction in digital media. Courses and workshops in screen-based media take place in state-of-the-art instructional labs that are open and available to students 14 hours a day. Students can choose from seven different Apple Computer labs running a full suite of Adobe and Apple products for multimedia authoring, including one lab running Windows environments for 3D graphics and one lab set up for video editing, with dual monitors and DV decks for acquisition. Other digitization tools offered include multiple standard digital scanners, three film scanners, one large flatbed scanner, and four Cintiq stylus-screens. Students can output their work using a host of Epson inkjet printers, printing in widths up to 48 inches and lengths of their choosing. The 3D output lab also features a Universal Laser Systems X-660 laser-cutter and FDM Stratasys Dimension SST 3-D printer. Students taking classes in these facilities also have access to a circulating pool of equipment for recording and capture of visual and audio data, including a range of digital SLR cameras for still imagery and digital video cameras for high and low-end applications. Tripods, microphones and lighting equipment are also available. Courses taught in the labs are augmented by lectures in one of four "smart rooms" within the School of Art and Design, which allow for networked presentations and projections in multiple media formats.