Undergraduate Teaching & Research in the Wired! Lab

Caroline Bruzelius
Anne M. Cogan Professor of Art, Art History & Visual Studies

Sheila Dillon
Professor of Art History and Classical Studies

Hannah L. Jacobs
Multimedia Analyst, Wired! Lab

Kristin Huffman Lanzoni
Instructor in Art, Art History & Visual Studies

Mark J.V. Olson
Cordelia and William Laverack Family Assistant Professor of Art, Art History & Visual Studies

Lee Sorenson
Librarian for Visual Studies and Dance, Lilly Library

Victoria Szabo
Asosiate Research Professor, Visual & Media Studies | Program Director, Information Science & Studies

John Taormina
Director, Visual Media Center

Edward Triplett
Council on Library & Information Resources Postdoctoral Fellow in Data Curation for Visual Studies

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By the Numbers

• Numbers of students 2013-16: 50 students involved, 11 of whom have worked multiple years.

• 16 different majors are represented by the students collaborating in Wired! Research initiatives.

• Our Freshman Seminars that engage digital technologies in historical questions are gateways to longer-term research: out of 21 students in the freshman Mapping & Modeling courses in 2013 and 2014, one-third (7) continue to work in the Wired! Lab.

• Since Fall 2015, 7 new students have joined in Wired! Lab research projects as a result of other Wired! courses taught in Fall 2015.

• Three Senior Distinction Projects (2014, 2015, and 2016) have been completed under the auspices of Wired!, one of whom was a Faculty Scholar.

History

Wired! began as a grass-roots faculty initiative in 2009. In 2010 we obtained start-up funding from Provost Lange and Dean Aravamudan for a dedicated laboratory with hardware, software and part-time designated IT support (the last of this funding is about to run out). From its inception, Wired! has been committed to preparing Duke students with the research tools of the 21st century, offering new undergraduate courses and multiple graduate and post-doc workshops in Digital Visualization both at Duke and at our lab at VIU in Venice.
Synopsis

Wired! offers Duke undergraduates the opportunity to work on long-term research projects that engage digital technologies with historical questions. The goal of the Wired! Lab (as both a place and a concept) is to train students through research projects that have a public-facing component such as websites, apps, and interactive museum displays.

Wired! teams explore how new and emerging technologies can engage students in original research. Participants work in teams and take an active role in developing database structures. They learn a variety of modeling and mapping tools and digital presentation strategies as well as teamwork and project management skills.

Wired! faculty mentor 18-20 undergraduates per year, with a total of 50 undergraduates since 2013. Eleven students have worked in the lab from their freshman through their senior years. Wired! student collaborators currently span across 16 majors from humanities, social sciences, and sciences. Students are often introduced to the lab through our freshman seminars and then join a multi-year research community that meets every week. 33% of the students who take our freshmen courses become part of a research project.

Beyond their education at Duke, Wired! undergraduates and graduate students gain an advantage in finding jobs in college teaching, software development, and museum education, as well as further study in graduate school. Their digital and teamwork skills are an important part of the “package” they present.
Wired! was created to explore the potential of digital technologies for the interpretation and analysis of cities, buildings, and works of art. An outstanding feature of Wired! is the link between undergraduate courses and research initiatives. Wired! courses link to seven on-going research initiatives:

- **Digital Athens**
- **The Lives of Places and Things** (a research theme that creates interactive displays in the Nasher Museum, and will soon initiate a multi-year research initiative on the design and construction of the Duke campus)
- **Visualizing Venice** (including VIVA: The Venice Interactive Virtual Atlas and other Venice-associated projects)
- **Augmenting Urban Experiences** (Digital Durham)
- **Operating Archives**
- **The Kingdom of Sicily Image Database**
- **Paris of Waters**

**Wired! and the new Curriculum**

Wired! undergraduate courses and on-going research initiatives are positioned to contribute substantively to the new undergraduate curriculum as currently conceived by the IDC committee. All our courses and research projects engage the five broad “expectations” or “modes of inquiry” as articulated by the committee and that animate the new curriculum:

1) Compelling Communication  
2) Understand Other Languages, Cultures, and Civilizations, Past and Present;  
3) Understand Different Forms of Scientific Thought and Evidence;  
4) Understand Creative Products of the Human Imagination;  
5) Evaluate, Manage And Interpret Information.

In addition, the research initiatives of the Wired! Lab would also fulfill the requirement of a mentored scholarly experience, a centerpiece of the new curriculum.
2014-2015 (22 undergraduates)

**Kingdom of Sicily:**
Michael O’Sullivan (Psychology)  
Alexandra Sansosti (Dance)  
Joseph Williams (Ph.D. Candidate)

**Lives of Things:**
Sinan Goknur (Ph.D. Candidate)  
Alexandra Dodson (Ph.D., 2016)

**Parls of Waters:**
Hanna Wiegers (Art History)

**Venice Virtual World:**
Ting Lu (Economics)  
Zeren Zhang (Economics & Statistics)  
Xirlu Liu (Economics)  
Sherry Liu (Computer Science)  
Nick Pan (Computer Science)  
Meng’En (Computer Science & Visual and Media Studies)

**VIVA:**
Julia Huang (Political Science)  
Anne Haueter (Computer Science)  
Stephanie Fiddy (Computer Science)  
Jared Schwartz (Computer Science)  
Iara Dundas (Ph.D. Candidate)  
Laura Moure Cecchini (Ph.D., 2016)  
Alexandra Dodson (Ph.D., 2016)

**Operating Archives:**
Alexandra Gordon (Visual Arts)  
Samuel Coons (Urban & Religious Studies, Cornell University)

**Distinction Project:**
Tara Trahey, “Visualizing an Iconographic Network Between Athens and Vulci in the 6th Century B.C.E.” Tarah was also Faculty Scholar for Class of 2015.

2013-2014 (19 undergraduates)

**Parls of Waters:**
Hannah Wiegers (Art History)  
Emma Durham  
Hannah Koo (History)

**Digital Athens:**
Jordan Noyes (Art History)  
Amanda Fetter (Classics)  
Eloise Cartwright (Art History & French)  
Justin Sandulli (Art History)  
Julian Salazar (Art History & Mathematics)  
Tara Trahey (Art History)  
Tim Shea (Ph.D. Candidate)

**Venice Virtual World:**
Ting Lu (Economics)  
Stephanie Fiddy (Computer Science)  
Julia Huang (Political Science)

Franklin Morgan (Engineering)  
Alexandra Orvis (Computer Science)  
Zeren Zhang (Economics and Statistics)  
Xirlu Liu (Economics)  
Chelsea Pieroni (Philosophy)  
Julia Healy (French)  
Iara Dundas (Ph.D. Candidate)  
Laura Moure Cecchini (Ph.D., 2016)  
Elisabeth Narkin (Ph.D. Candidate)

**Operating Archives:**
Rachel Harris (Computer Science)  
Stephanie Fiddy (Computer Science)  
Julia Huang (Political Science)

**Distinction Project:** Jordan Noyes, “Street Art on Border Walls: The Context of Space”
**Additional Students Affiliated Prior to 2013**

Umberto Playa (Visual Studies)  
Michal Koszycki (Visual Studies)  
Catherine Stanley (Art History)  
Akara Lee  
Laura Fravel (Art History)  
Charles Sparkman (Architecture)  
Matthew Woodworth, Graduate Student  
Erica Sherman, Graduate Student  
Joseph Williams, Graduate Student  
Alexandra Dodson, Graduate Student  
Elizabeth Baltes, Graduate Student
Working with Wired! 2009-2016
Integrating technology with teaching & research

TEACHING
• Visualize historical content with digital tools
• Design courses that produce public-facing scholarship
• Develop technical expertise (transferrable skills)
• Teach in interdisciplinary teams
• Transform teaching beyond the semester model

RESEARCH
• Build vertically integrated research teams
• Promote peer-to-peer learning
• Enable students to apply digital skills to original research
• Facilitate competencies in project management & development
• Expand faculty research with public outreach

OUTCOMES

Individual Development
• Distinction theses
• Graduate study
• Careers in museums, arts management, & technology
• Internships

Public Outreach
• Museum & virtual exhibitions
• Books, articles, online essays
• Invited lectures
• Websites, databases, & apps
• International collaborations
We have created two MA programs (Digital Art History and Computational Media), and have become a national model for Digital Humanities. Members of our team are frequently asked to present at colleges and universities nationwide (for example, Wesleyan, Temple, Bucknell, Skidmore, Berkeley, Wake Forest, Vanderbilt, the Universities of Puget Sound and Vermont, and the universities of Barcelona, Canberra, Sydney, and Cracow) as well as at national and international conferences. Other institutions send delegations to us to see our lab space and find out how our teaching/research model works (Berkeley, Emory, Maryland, Vanderbilt and Wake Forest).

Wired! has been proactive in finding new sources of funding to support student research and training from outside Duke University, raising about $300,000 in student and workshop support from the Delmas Foundation, the Samuel H. Kress Foundation, and the Getty Foundation. We discovered that the Council on Library and Information Resources offers postdoctoral fellowships in data curation and working with the Duke Libraries were able to obtain a two-year position in the person of Edward Tripplett, PhD 2015, University of Virginia. An additional $290,000 grant from the NEH supported one of our Wired! research projects (the Kingdom of Sicily Database) from 2011 to 2014.
Wired! Students 2009-2016

2015-2016 (18 undergraduates)

**Digital Athens:**
Anna Vivian (Physics & Art History, Global Health Minor)
Casey Tissue (Computer Science)
Tim Shea (Ph.D. Candidate)
Nikos Gkiokas (Ph.D. Student)

**Statues Speak:**
Jessica Williams (undeclared)
Christy Kuesel (undeclared)
Elizabeth Baltes (Ph.D., 2016)

**Kingdom of Sicily:**
Michael O’Sullivan (Psychology)
Alta Zhang (M.A. in Digital Art History)
Jessica Williams (undeclared)
Joseph Williams (Ph.D. Candidate)

**Lives of Things:**
Adair Jones (Art History & Visual Arts)
Joseph Williams (Ph.D. Candidate)

**Venice Virtual World:**
Xirui Liu (Economics)
Zeren Zhang, (Economics & Statistics)

**VIVA:**
Jane (Sydney) Harrington (Computer Science)
Anne Haueter (Computer Science)
Cassidy Oberfield (Political Science)
Elizabeth Speed (Art History)
Yiou Wang (Psychology)
Julia Huang, (Political Science)
Mary Kate Weggeland (undeclared)
Gabrielle Paul (International Comparative Studies)
Laura Moure Cecchini (Ph.D., 2016)
Iara Dundas (Ph.D. Candidate)
Elisabeth Narkin (Ph.D. Candidate)
Lucas Giles (M.A. in Digital Art History)

**Distinction Project:**

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2014-2015 (22 undergraduates)

**Augmenting Places & Spaces:**
Jessica Pissini (M.A. in HCVIS, 2015)

**Digital Athens:**
Yifan Song (Economics and History)
Tori Cohen (Art History)
Alex Smith (Psychology)
Anna Vivian (Physics & Art History)

**Duke Ghosts:**
Samuel Coons (Urban & Religious Studies, Cornell University)
Ting Lu (undeclared)
Jordan Noyes (M.A. in HCVIS, 2015)

Tim Shea (Ph.D. Candidate)
Alina Taalman (MFA)