

Bill Ferster

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ACADEMIC PREPARATION

PhD in Education, University of Virginia, 2006
BFA in Design, George Washington University, 1979

PROFESSIONAL EXPERIENCE

Research Professor, University of Virginia 2013-present

Faculty appointment to the Curry School of Education.

- Director of *Interactive Visualization* (www.viseyes.org) projects at the Science, Humanities, and Arts Network Technology Initiative (SHANTI).
- Co-PI on National Endowment for the Humanities grant (www.mapscholar.org) to explore new ways to view historical maps.
- Taught classes in instructional design and educational tools design.

Senior Research Scientist, University of Virginia 2006-2013

Joint faculty appointment to the Curry School of Education and the College of Arts and Sciences at The Virginia Center for Digital History.

- Director of the *PrimaryAccess* project (www.primaryaccess.org), which enables K-12 students to create digital documentaries.
- Director of the *VisualEyes* and *SHIVA* projects (www.viseyes.org) at SHANTI.
- Directed the *HistoryBrowser* project for the Virginia Center for Digital History.
- Taught digital history classes: Jefferson's Travels, Vinegar Hill, & 1828 library.

Founder, StageTools 1996-present

Developer of *MovingPicture*, a software tool used by all the major television networks, and a number of corporate and documentary film producers to create motion on still images, à la Ken Burns: (www.stagetools.com).

General Manager Editing Products, Dynatech Video Group 1994-1996

Transitional role following the EMC acquisition.

Founder, Editing Machines Corporation (EMC) 1988-1994

Founded EMC in July 1988 to develop and manufacture the first digital nonlinear video editing system for the film/video industry. EMC reached \$5M in revenues and won an *EMMY award for Outstanding Technical Achievement* in 1993.

Director Product Strategy, Pansophic Systems 1987-1988

Transitional role following the acquisition of *West End Film*.

Founder, West End Film 1980-1987

Designed and manufactured the first PC-based Oxberry motion control system, *The Cameraman*. Designed and marketed a series of software packages for computer animation and design; *Artwork*, *Brushwork*, *Chartwork*, *Pagework*, and *VideoWork*.

Animation Cameraman, Stowmar Productions 1980

Animation cameraman and lighting design for animated stop-motion feature film of Walt Kelly's *I Go Pogo*.

Broadcast Graphic Artist, ABC News 1979

Produced on-air graphics for use on the *Good Morning America* and the *ABC Evening News* programs from the Washington, DC bureau.

Film Preservationist, US National Archives 1977

Restored historic footage from volatile nitrate to celluloid safety formats.

GRANTS (PI/CO-PI)

National Endowment for the Humanities 2012-2015 \$289,782

PrimarySourceLearning (Library of Congress) 2008. \$122,000

National Endowment for the Humanities 2008. \$49,931

Smithsonian Institution 2008. \$10,000

J.B. DuPont Foundation. 2007-2008. \$154,700.

Adventures of the American Mind (Library of Congress) 2007. \$116,370

BOOKS AND CHAPTERS

Ferster, B. (in press). Interactive Historical Visualization. In D. Staley (Ed.), *A companion to digital history*. Hoboken, NJ: John Wiley & Sons.

Ferster, B. (2016). *Sage on the screen: Education, Media, and How We Learn*. Baltimore, MD: Johns Hopkins University Press.

Ferster, B. (2014). *Teaching Machines: Learning from the intersection of education and technology*. Baltimore, MD: Johns Hopkins University Press.

Ferster, B. (2012). *Interactive visualization: Insight through inquiry*. Cambridge, MA: MIT Press.

Hammond, T., & Ferster, B. (2009). Student-created digital historical narratives in the classroom: research designs and methods. In J. Lee, & A. Friedman (Eds.), *Research in social studies and technology*. Greenwich, CT: Information Age.

SELECTED PUBLICATIONS

- Staley, D., French, S., & Ferster, B. (2014). Visual Historiography: Visualizing “The Literature of a Field”. *Journal of Digital Humanities*, 3(1). Online at: <http://journalofdigitalhumanities.org/3-1/visual-historiography-visualizing-the-literature-of-a-field>
- Edelson, S., & Ferster, B. (2013). MapScholar: A Web Tool for Publishing Interactive Cartographic Collections, *Journal of Map and Geography Libraries: Advances in Geospatial Information, Collections & Archives*, 9(1).
- Bull, G., Ferster, B., & Kjellstrom, W., (2012), “Inventing the Flipped Classroom” *Leading and Learning with Technology*, 39(8).
- Ferster, B., Hammond, T., Alexander, C., & Lyman, H., (2012). Automated Formative Assessment as a Tool to Scaffold Student Documentary Writing. *Journal of Interactive Learning Research* 23(1) 107-125.
- Fanning, E, Bunch, J., Brighton, C., & Ferster, B. (2011). Innovations in Education and Entertainment Settings: A Quest for Convergence. *International Journal of E-Learning* 10(2).
- Bull, G., Alexander, C., & Ferster B., (2009) “The Connected Classroom: Finding students who learn with Media” *Leading and Learning with Technology*, 37(5).
- Bull, G., Hammond, T., & Ferster, B., (2008). Developing Web 2.0 Tools for Support of Historical Inquiry in Social Studies, *Computers in the School*, 3(4), 275-287.
- Ferster, B. (2007). History Lesson: Making Documentaries for Students on the Internet, *Aim Home School Magazine*, 1(1), 38-41.
- Ferster, B., Hammond, T. & Bull, G. (2006). PrimaryAccess: Creating Digital Documentaries in the Social Studies Classroom, *Social Education*, 21(2)
- Bull, G., Ferster B., (2006) “Ubiquitous Computing in a Web 2.0 World.” *Leading and Learning With Technology*, 33(4), 9-11.
- Ferster, B. & Steckroth, J. (2004). CameraScope: A tool for digital visualization for science and mathematics classrooms. *School Science and Mathematics*, 104(7).
- Ferster, B. (1998). Idea Editing: Previsualization for Feature Films, *POST*, April.
- Ferster, B. (1997). RC: Reconfigurable Computing, *AV Video*, September.
- Ferster, B. (1996). High Definition Digital Television is coming: Whether you want it or not, *Videography*, November.

TEACHING EXPERIENCE

Digital Historiography (2013). Joint graduate history seminars with Scot French at University of Central Florida and David Staley at Ohio State University to apply natural language analysis and topic modeling techniques to an exploration of journal articles in the Florida Historical Quarterly 1920-1940.

Designing Learning Tools (2013). Graduate seminar class to research, design, and build the next generation of tools for interactive video-based online instruction.

Digital Humanities (2011). Undergraduate seminar class of 1st-year students explore visualization 1895 UVa Rotunda, taught with religious studies professor Kurtis Schaeffer.

Cultural Landscapes (2010). Undergraduate/graduate seminar to explore digital cultural landscape reports about the Morven Farm taught with landscape architect Ethan Carr.

Digital Humanities (2010). Undergraduate seminar class of 1st-year students explore visualization of the books in the 1828 UVa library, taught with religious studies professor Kurtis Schaeffer.

Visualizing Vinegar Hill (2008-2010). Undergraduate seminar class of 4th-year history majors to create a visualization of an African American neighborhood razed for urban renewal in the 1960's, taught with history professor Scot French.
(www.viseyes.org/show?base=vh).

Jefferson's Travels (2008-2009). Undergraduate seminar class of 4th-year history majors to create a visualization of Thomas Jefferson's 1786 travels in England, taught with history professor Scot French and Monticello Foundation.
(www.viseyes.org/show?base=jt).

PRESENTATIONS

Digitorium Digital Humanities Conference

Tuscaloosa, AL, April 2015

MapScholar: A Visualization Tool for American Studies and Spatial History Projects

VCU Online Learning Summit

Richmond, VA, May 2014

Qmedia: Learning with video from outside of the box

Organization of American Historians (OAH)

Atlanta, GA, April 2014

Investigating and Teaching U. S. History through Visual Sources and New Media

Maryland Institute for Technology in the Humanities (MITH)

University of Maryland, April 2012

Historical Interactive Visualization: Coaxing Data to Tell Stories

NPR Kojo Nnamdi Show

Washington, DC, January 2011
Exploring the Digital Humanities

edUI Conference

Charlottesville, VA, November 2010
Visualization in Education

MIT HyperStudio: Visual Interpretations

Cambridge MA, May 2010
Visualization 101- Escape from Etudes

Center for Educational Technology

Cape Town SA, March 2010
University of Cape Town
Teaching Historical Visualization

National Council on Social Studies Conference (NCSS)

Atlanta GA, November 2009
Building History in the College Classroom: Thomas Jefferson's Travels

Digital Tools for Information and Democracy Conference

Monticello, Charlottesville VA, November 2009
Jefferson Institute
Using Primary Source Documents in Digital Narratives

Digital History Workshop

Nashville TN, September 2009
Gore Research Center and Middle Tennessee State University
Historical Visualization

Seminar on Innovative Approaches to Turn Statistics into Knowledge

Washington DC, July 2009
OECD, World Bank, and United States Census Bureau
Data-Oriented Digital History Tools

Library of Virginia: Going to the Source Conference

Richmond VA, June 2009
PrimaryAccess Workshop

Library of Congress / Fairfield University & Museum

Fairfield CT, May 2009
Teaching with Primary Sources

American Association for History and Computing

Fairfax VA, April 2009
Advancing Digital History Tools and Scholarship in the Classroom

New Directions in Digital Humanities Scholarship / CLIR

Champaign-Urbana IL, February 2009

Jefferson's Travels

Visualizing the Past / NEH

Richmond VA, February 2009

The Emancipation of Data: A call to action

Museum Computer Network Conference

Washington DC, November 2008

Emergent Course Design: Univ. & Museum Partnerships for Student-Generated Content

Virginia Association of Independent Schools Conference

Richmond VA, November 2008

Digital Storytelling with PrimaryAccess

Educational Testing Service (ETS)

Princeton NJ, September 2008

Invited talk: *Formative Assessment using Automated Essay Scoring*

EDUCAUSE Learning Initiative

Raleigh NC, March 2008

Digital Documentaries with PrimaryAccess

National Educational Computing Conference

Atlanta GA, June 2007

Workshop: *PrimaryAccess: Creating Digital Documentaries in the Social Studies Classroom* with Glen Bull and Thomas Hammond

Society for Information Technology and Teacher Education

Orlando FL, March 2006

17th Annual Conference

Symposium: *Digital History in Social Studies Teacher Education*

Workshop: *Digital Storytelling*

Multimedia Educativo Congresso V

Barcelona Spain, July 2005

University of Barcelona

The PrimaryAccess Initiative for Digital Historical Narratives

National Educational Computing Conference

New Orleans LA, June 2004

Digital Cameras and Digital Images in the Science Classroom

Society for Information Technology and Teacher Education

Atlanta GA, March 2004

15th Annual Conference

Digital Imaging in the Science Classroom with Randy Bell

Symposium on Public-Private Partnerships in Technology Education

Hamilton Bermuda, January 2004
International Education Collaborative Foundation
Capturing Authentic Learning

Pratt Institute Digital Imaging Conference

New York NY, March 1987
Pratt Institute of Art
PC-based Computer Graphics and Animation

PAPERS PRESENTED AT CONFERENCES

IEEE Symposium on Information Visualization

Providence RI, October 2011
VSEM: Teaching using visualization

Society for Information Technology and Teacher Education

San Diego CA, March 2010
Expanding the Role of VisualEyes: Developing STEM Content for an XML-Based Online Interactive Spatial and Temporal Events Browser
with Daniel Tillman

National Educational Computing Conference

Washington DC, June 2009
Showing, Inquiring, and Doing History: Thinking Deeply with Web-based Tools
with Thomas Hammond

Society for Information Technology and Teacher Education

Charleston SC, March 2009
Automated Formative Assessment as a Tool to Scaffold Script Writing in PrimaryAccess
with Curby Alexander

IOE Conference

London England, June 2005
University of London Institute of Education
Using Primary Source Documents in Digital Historical Narratives

HONORS AND AWARDS

Best 25 Educational Web sites - 2009

American Library Association
Awarded to PrimaryAccess, as one of the best 25 educational web sites by the American Association of School Libraries.

Jerry Price Innovative Technology Award - 2008

Society for Information Technology and Teacher Education
Awarded to recognize an individual who has contributed a significant innovation or advance to the practice of education

EDLF Dissertation Award - 2006

Curry School of Education, University of Virginia
Awarded for the doctoral dissertation of highest theoretical, methodological, and analytic quality.

Emmy Award - 1993

National Academy of Television Arts and Sciences
1993 Emmy award for “*Outstanding Technical Achievement*” in pioneering the nonlinear editing process.

Art Directors of Washington - 1978

First Place – Graphics / Second Place - Advertising

PATENTS

US Patent Number 5,559,562 - 1996

MPEG EDITOR METHOD AND APPARATUS
Seminal patent for real-time editing and mixing of MPEG encoded video streams, licensed by a number of leading manufacturers worldwide.

NARRATIVE

Bill Ferster’s work over the past 30 years has been highlighted by the development of a series of innovative products for film and video production and K-12 education. Ferster founded StageTools (www.stagetools.com), the leading developer of digital motion control tools with its *MovingPicture* pan and zoom tool for broadcasters. He is a research professor at the University of Virginia and director of visualization with the Sciences, Humanities & Arts Technology, where he develops historical visualization and educational technology tools (www.viseyes.org).

In previous lives, he founded Editing Machines, developer of the first digital nonlinear editing system and won an Emmy Award for pioneering the nonlinear technology that has revolutionized the way all films and videos are edited. He founded West End Film, a pioneer in PC-based animation and presentation graphics tools.

Bill is the author of *Interactive Visualization: Insight through Inquiry* (MIT Press, 2013) published by, *Teaching Machines: Learning from the intersection of technology and education* (Johns Hopkins University Press, 2014), and *Sage on the Screen: Using Media to Learn* (Hopkins, 2016).

ACADEMIC NARRATIVE

Bill Ferster is a research professor in the Curry School of Education at the University of Virginia and director of visualization with the Sciences, Humanities & Arts Technology Initiative (SHANTI) at the College of Arts and Sciences. He teaches undergraduate classes that use interactive visualization to explore topics in American history and learning tools design. He is the author of *Interactive Visualization: Insight through Inquiry* (2013), published by MIT, *Teaching Machines* (2014), published by Johns Hopkins University Press, and *Sage on the Screen: Using Media to Learn*, to be published by Hopkins next year.

At SHANTI he directs VisualEyes, Qmedia, and SHIVA projects. VisualEyes (www.viseyes.org) is web-based authoring tool to weave images, maps, charts, video and data into highly interactive and compelling dynamic visualizations. Qmedia is a next-generation video authoring tool for creating context-rich video presentations. SHIVA makes it easy to create interactive visualizations and uses the new HTML5 web standard.

At Curry, he directed the PrimaryAccess Project (www.primaryaccess.org) which enables middle and high school students to create digital documentaries using primary source documents online and recently won the American Library Association's 25 best educational websites award. He has taught classes in historic visualization, instructional design, introduction to programming, digital historiography and media studies, typically using a project-based learning approach.

PRE-ACADEMIC NARRATIVE

Bill Ferster's career has been highlighted by the development of a series of innovative, computer-based products for the film and video marketplace. In each case, the new product revolutionized existing industry standards and led market demand for advanced technology tools serving creative people.

He has founded a number of innovative technology companies, beginning in 1979, with the founding of West End Film, maker of one of the first PC-based 3D animation systems. Further development yielded a full product suite of integrated drawing tools for slide making, paint, charting and full-color desktop publishing to over 1,200 clients worldwide. West End's success attracted the interest of Chicago-based Pansophic Systems (NYSE), who acquired West End Film in 1987. Bill served as Director of Product Strategy until 1988, when he founded Editing Machines Corporation.

The mission of EMC was to develop and market a creative and cost effective tool for streamlining the offline editing process, applying the random access abilities of computer technology to video editing. The result was the EMC2, the world's first digital nonlinear offline editing system. The EMC2 has been very successful, with over 800 users in 32 countries throughout the world. Bill received an **EMMY** Award in 1993, for "*Outstanding Technical Achievement in Digital Editing*", for pioneering a technology that has revolutionized the way all films and videos are being edited. EMC was acquired by the Dynatech Video Group in 1994, a diversified information technology public company, where he served as the division General Manager responsible for the nonlinear editing products.

He founded StageTools in 1998, which is the leading developer of digital motion control tools with its MovingPicture product. MovingPicture is a tool for documentary and industrial filmmakers to pan and zoom on high-resolution images. MovingPicture is used extensively by organizations as diverse as ABC, CBS, FOX, NBC, BBC, PBS, MSNBC, Discovery, LifeTime, Harvard, Yale, Tufts, Apple, Microsoft, the White Sox, and the legendary Ken Burns.