

# Mat Kelly

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## RESEARCH INTERESTS

- Digital Preservation, Personal Web Archiving, Information Visualization.

## Education

- 2012–present **Doctor of Philosophy in Computer Science**  
*Old Dominion University, Norfolk, VA.*
- 2010–2012 **Master of Science in Computer Science**  
*Old Dominion University, Norfolk, VA.*  
Thesis: An Extensible Framework for Creating Personal Archives of Web Resources Requiring Authentication
- 2001–2006 **Bachelor of Science in Computer Science**  
*University of Florida, Gainesville, FL.*

## Professional Experience

- 2015 OLD DOMINION UNIVERSITY  
*Instructor, CS418 - Web Programming*  
Norfolk, VA.
- 2011–present OLD DOMINION UNIVERSITY DEPARTMENT OF COMPUTER SCIENCE  
*Graduate Research Assistant*  
Norfolk, VA.
- 2011–present NASA LANGLEY RESEARCH CENTER  
*Mobile Applications Developer*  
Hampton, VA.
- 2009 BMW GROUP INFORMATION TECHNOLOGY RESEARCH CENTER  
*Research Intern*  
Greenville, SC.
- 2006–present BLADE SOFTWARE / BLADE AGENCY  
*Web Programmer*  
Gainesville, FL.
- 2006–2007 SUMTOTAL SYSTEMS, INC. / MINDSOLVE TECHNOLOGIES, INC.  
*Web Programmer*  
Gainesville, FL.
- 2005–2006 CENTER FOR INSTRUCTIONAL TECHNOLOGY AND TRAINING AT UNIVERSITY OF FLORIDA  
*Web Designer*  
Gainesville, FL.
- 2003–2006 THE INDEPENDENT FLORIDA ALLIGATOR  
*Managing Editor, New Media*  
Gainesville, FL.

## Publications

### JOURNAL PUBLICATIONS

- [1] Justin F. Brunelle, Mat Kelly, Michele C. Weigle, and Michael L. Nelson, “The Impact of JavaScript on Archivability,” *International Journal on Digital Libraries (IJDL)*, 17(2), pp. 95-117, 2015.
- [2] Justin F. Brunelle, Mat Kelly, Hany SalahEldeen, Michele C. Weigle and Michael L. Nelson, “Not All Mementos Are Created Equal: Measuring the Impact of Missing Resources,” *International Journal on Digital Libraries (IJDL)*, 16(3), pp. 283-301, 2015.

### CONFERENCE PUBLICATIONS (PEER-REVIEWED)

- [1] Mat Kelly, Michael L. Nelson, and Michele C. Weigle, “A Framework for Aggregating Private and Public Web Archives,” In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, pp. 273-282, 2018.
- [2] Mohamed Aturban, Mat Kelly, Sawood Alam, John A. Berlin, Michael L. Nelson, and Michele C. Weigle, “ArchiveNow: Simplified, Extensible, Multi-Archive Preservation,” In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, pp. 321-322, 2018.
- [3] Sawood Alam, Mat Kelly, Michele C. Weigle and Michael L. Nelson, “Unobtrusive and Extensible Archival Replay Banners Using Custom Elements,” In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, pp. 319-320, 2018.
- [4] Mat Kelly, Lulwah M. Alkwai, Sawood Alam, Michael L. Nelson, Michele C. Weigle, and Herbert Van de Sompel, “Impact of URI Canonicalization on Memento Count,” In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, pp. 303-304, 2017.
- [5] Sawood Alam, Mat Kelly, Michele C. Weigle, and Michael L. Nelson, “Client-side Reconstruction of Composite Mementos Using ServiceWorker,” In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, pp. 237-240, 2017.
- [6] John A. Berlin, Mat Kelly, Michele C. Weigle, and Michael L. Nelson, “WAIL: Collection-Based Personal Web Archiving,” In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, pp. 340-341, 2017.
- [7] Mat Kelly, Sawood Alam, Michael L. Nelson, and Michele C. Weigle, “InterPlanetary Wayback: Peer-To-Peer Permanence of Web Archives,” In *Proceedings of the International Conference on Theory and Practice of Digital Libraries (TPDL)*, pp. 411-416, 2016.
- [8] Sawood Alam, Mat Kelly, and Michael L. Nelson, “InterPlanetary Wayback: The Permanent Web Archive,” In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, pp. 273-274, 2016.
- [9] Wesley Jordan, Mat Kelly, Justin F. Brunelle, Laura Vobrak, Michele C. Weigle, and Michael L. Nelson, “Mobile Mink: Merging Mobile and Desktop Archived Webs,” In *Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL)*, pp. 243-244, 2015.
- [10] Michael Ruffing, Yangyang He, Mat Kelly, Jason O. Hallstrom, Stephan Olariu, and Michele C. Weigle. “A Retasking Framework For Wireless Sensor Networks,” In *Proceedings of the IEEE Military Communications Conference (MILCOM)*, pp. 1066-1071, 2014.
- [11] Justin F. Brunelle, Mat Kelly, Hany SalahEldeen, Michele C. Weigle, and Michael L. Nelson, “Not All Mementos Are Created Equal: Measuring The Impact Of Missing Resources,” In *Proceedings of the IEEE/ACM Joint Conference on Digital Libraries (JCDL)*, pp. 321-330, 2014.

- [12] Mat Kelly, Michael L. Nelson, and Michele C. Weigle, “The Archival Acid Test: Evaluating Archive Performance on Advanced HTML and JavaScript,” In Proceedings of the IEEE/ACM Joint Conference on Digital Libraries (JCDL), pp. 25-28, 2014.
- [13] Mat Kelly, Michael L. Nelson, and Michele C. Weigle, “Mink: Integrating the Live and Archived Web Viewing Experience Using Web Browsers and Memento,” In Proceedings of the IEEE/ACM Joint Conference on Digital Libraries (JCDL), pp. 469-470, 2014.
- [14] Mat Kelly, Michael L. Nelson, and Michele C. Weigle. “Graph-Based Navigation of a Box Office Prediction System,” In Proceedings of the IEEE VIS 2013, 2013.
- [15] Mat Kelly, Justin F. Brunelle, Michele C. Weigle, and Michael L. Nelson. “On the Change in Archivability of Websites Over Time,” In Proceedings of the International Conference on Theory and Practice of Digital Libraries (TPDL), pp. 35-47, 2013.
- [16] Mat Kelly and Michele C. Weigle, “WARCreate - Create Wayback-Consumable WARC Files from Any Webpage,” In Proceedings of the ACM/IEEE Joint Conference on Digital Libraries (JCDL), pp. 437-438, 2012.
- [17] Thad Chee, Matthew Kelly, Louis Nguyen, Patrick Minnis, Rabindra Palikonda, Douglas A. Spagengberg, J. Kirk Ayers. Access to Real-time and Historic Satellite Products from a Mobile Application. Poster Presented at: American Geophysical Union Fall Meeting, 2011.

#### CONFERENCE PRESENTATIONS

- [1] Sawood Alam, Mat Kelly, Michele C. Weigle, and Michael L. Nelson, “InterPlanetary Wayback: The Next Step Towards Decentralized Web Archiving,” Presented at the Decentralized Web Summit, 2018.
- [2] Mat Kelly, Sawood Alam, Michael L. Nelson, and Michele C. Weigle, “Client-Assisted Memento Aggregation Using the Prefer Header,” Presented at the Web Archiving and Digital Libraries Workshop (WADL), 2018.
- [3] Sawood Alam, Mat Kelly, Michele C. Weigle, and Michael L. Nelson, “A Survey of Archival Replay Banners,” Presented at the Web Archiving and Digital Libraries Workshop (WADL), 2018.
- [4] Mat Kelly, Lulwah M. Alkwai, Sawood Alam, Michael L. Nelson, Michele C. Weigle, and Herbert Van de Sompel, “Impact of URI Canonicalization on Memento Count,” Presented at the Web Archiving and Digital Libraries Workshop (WADL), 2017.
- [5] Sawood Alam, Mat Kelly, Michele C. Weigle, and Michael L. Nelson, “Avoiding Zombies in Archival Replay Using ServiceWorker,” Presented at the Web Archiving and Digital Libraries Workshop (WADL), 2017.
- [6] Michele C. Weigle, Michael L. Nelson, Mat Kelly, and John Berlin, “Archive What I See Now - Personal Web Archiving with WARCS,” Presented at the International Internet Preservation Consortium (IIPC) Web Archiving Conference (WAC), 2017.
- [7] Mat Kelly and David Dias, “A Collaborative, Secure, and Private InterPlanetary Wayback Web Archiving System using IPFS,” Presented at the International Internet Preservation Consortium (IIPC) Web Archiving Conference (WAC), 2017.
- [8] Mat Kelly, “Tools for the Personal Web Archivist: WARCreate, WAIL, Mink, InterPlanetary Waybacks,” Presented at Archives Unleashed 4.0: Web Archive Datathon, 2017.
- [9] Mat Kelly, “Exploring Aggregation of Personal, Private, and Institutional Web Archives,” Presented at Archives Unleashed 2.0: Web Archive Datathon, 2016.
- [10] Mat Kelly, “InterPlanetary Wayback: The Permanent Web Archive,” Presented at the Web Archiving and Digital Libraries Workshop (WADL), 2016.
- [11] Mat Kelly, “A Framework for Aggregating Private and Public Web Archives,” at the ACM/IEEE Joint Conference on Digital Libraries (JCDL), Doctoral Consortium, 2015.
- [12] Mat Kelly, Michael L. Nelson, and Michele C. Weigle, “Visualizing Digital Collections of Web Archives,” Web Archiving Collaboration: New Tools and Models Workshop, 2015.

- [13] Mat Kelly, “Facilitation of the A Posteriori Replication of Web Published Satellite Imagery”, Virginia Space Grant Consortium 2015 Student Research Conference, 2015.
- [14] Mat Kelly, Michael L. Nelson, and Michele C. Weigle. “Efficient Thumbnail Summarization for Web Archives,” *Digital Preservation* 2014, 2014.
- [15] Mat Kelly. “Archive What I See Now,” Archive-It Partner Meeting, 2013.
- [16] Michael L. Nelson, Scott G. Ainsworth, Justin F. Brunelle, Mat Kelly, Hany SalahEldeen and Michele C. Weigle. “Who Will Archive the Archives? Thoughts About the Future of Web Archiving,” *Wolfram Data Summit* 2013, 2013.
- [17] Mat Kelly, Michael L. Nelson and Michele C. Weigle. “WARCreate and WAIL: WARC, Wayback and Heritrix Made Easy,” *Digital Preservation* 2013, Workshops and Sessions: Web Archiving, 2013.
- [18] Mat Kelly, Michele C. Weigle and Michael L. Nelson. “Making Enterprise-Level Archive Tools Accessible for Personal Web Archiving,” *Personal Digital Archiving* 2013, Poster Session, 2013.
- [19] Mat Kelly, Michele C. Weigle and Michael L. Nelson. “WARCreate - Create Wayback-Consumable WARC Files from Any Webpage,” *Digital Preservation* 2012, Tools Demo Session: Web Archiving, 2012.
- [20] Mat Kelly, Syed R. Rizvi, Liang Chen, Chinmay Lokesh, Stephan Olariu and Michele C. Weigle. ALERT: A Next-generation Emergency Response System for First Responders using Retasking of Wireless Sensor Networks, 13th Annual Tidewater Student Research Poster Session, 2011.
- [21] Mat Kelly, Michele C. Weigle and Michael L. Nelson. Archiving Your Facebook Pages Using Archive Facebook. NDIIPP/NDSA Partners Meeting Special Interest Session: Web Archiving, 2011.

#### ARTICLES

- [1] Sawood Alam, Mat Kelly, Michele C. Weigle, and Michael L. Nelson, “InterPlanetary Wayback: The Permanent Web Archive,” *Bulletin of the IEEE Technical Committee on Digital Libraries (TCDL)*, 13(1), 2017.
- [2] Mat Kelly, Lulwah M. Alkwai, Michael L. Nelson, Michele C. Weigle, and Herbert Van de Sompel, “Impact of URI Canonicalization on Memento Count,” *Technical Report arXiv:1703.03302*, 2017.
- [3] Mat Kelly, “A Framework for Aggregating Private and Public Web Archives,” *Bulletin of the IEEE Technical Committee on Digital Libraries (TCDL)*, 11(3), 2015.
- [4] Mat Kelly, Justin F. Brunelle, Michele C. Weigle and Michael L. Nelson. “A Method for Identifying Personalized Representations in the Archives,” *D-Lib Magazine*, 19(11/12), 2013.
- [5] David Helman, Matthew Kelly, Martin Guttman, Bill Carter, Enrique Castro-Leon, Thomas Kellerer, Dror Shenkar. “Preserving Performance While Saving Power Using Intel Intelligent Power Node Manager and Intel Data Center Manger”, 2009.

## Awards and Recognition

- [1] Best Paper Award Finalist, *ACM/IEEE JCDL* 2018.
- [2] Best Poster Award, *ACM/IEEE JCDL* 2018.
- [3] Best Poster Award, *ACM/IEEE JCDL* 2017.
- [4] Donald W. Reynolds Journalism Institute Scholar, 2016.
- [5] Best Poster Award, *ACM/IEEE JCDL* 2015.
- [6] Best Student Paper Award, *ACM/IEEE JCDL* 2014.
- [7] NASA Virginia Space Grant Consortium Graduate Fellow, 2014.

- [8] Acknowledged Contributor, RFC7089: HTTP Framework for Time-Based Access to Resource States – Memento, 2013.
- [9] Future Steward Innovation Award Recipient, National Digital Stewardship Alliance (NDSA) / Library of Congress, 2012.
- [10] Featured Graduate Student, Old Dominion University Department of Computer Science, 2012.

## Software

Through my academic career I have both created and publicly released open source software:

- [1] *InterPlanetary Wayback (ipwb)* (150 stars on GitHub)  
Archival index and replay suite to integrate WARC files and the InterPlanetary File System (ipfs)  
<https://github.com/oduwsdl/ipwb>
- [2] *Web Archiving Integration Layer (WAIL)* (83 stars on GitHub)  
Desktop application to allow non-technical users to easily leverage institutional grade web archiving tools  
<https://github.com/machawk1/wail>
- [3] *WARCreate* (40 stars on GitHub)  
Google Chrome extension to allow users to create web archive (WARC) files from any web page.  
<https://github.com/machawk1/warcreate>
- [4] *Mink* (13 stars on GitHub)  
Google Chrome extension to integrate the live and archive web while a user browses and encourage one-click submission to web archives.  
<https://github.com/machawk1/mink>

## Hackathons

Attending web archiving related hackathons has provided an opportunity to rapidly code and collaborate with participants from other research institutions.

- [1] Archives Unleashed 4.0: Web Archive Datathon  
London, UK, June 2017  
<http://ws-dl.blogspot.com/2017/07/2017-07-19-archives-unleashed-40-web.html>
- [2] Archives Unleashed 2.0: Web Archive Hackathon  
Washington, DC, June 2016  
<http://ws-dl.blogspot.com/2016/06/2016-06-27-archives-unleashed-20-web.html>
- [3] Archives Unleashed Hackathon  
Toronto, Canada, March 2016  
<http://ws-dl.blogspot.com/2016/03/2016-03-07-archives-unleashed-web.html>

## Service

- [1] Organizing Committee, Publicity Chair, Joint Conference on Digital Libraries, 2018.
- [2] Reviewer, Joint Conference on Digital Libraries, 2018.
- [3] Reviewer, Access 2017 Conference, 2017.
- [4] Subreviewer, Joint Conference on Digital Libraries, 2012.