

## Justin F. Brunelle

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CONTACT INFORMATION	Lead Researcher The MITRE Corporation 903 Enterprise Pkwy , Ste 200 Hampton VA, 23666 <a href="http://bit.ly/2wCpN9k">http://bit.ly/2wCpN9k</a>  Adjunct Assistant Professor Department of Computer Science Old Dominion University Engineering and Computational Sciences Bldg 4700 Elkhorn Ave. Norfolk, VA 2352 <a href="http://bit.ly/2v4iqrH">http://bit.ly/2v4iqrH</a>	Office: +(757) 896-8569 Fax: +(757) 826-831 E-mail: <a href="mailto:jbrunelle@mitre.org">jbrunelle@mitre.org</a>  Mobile: +(757) 536-1586 E-mail: <a href="mailto:jbrunelle@cs.odu.edu">jbrunelle@cs.odu.edu</a>
WEB PRESENCE	<a href="http://justinfbrunelle.com/">http://justinfbrunelle.com/</a> <a href="https://www.linkedin.com/in/justinfbrunelle/">https://www.linkedin.com/in/justinfbrunelle/</a> <a href="https://twitter.com/justinfbrunelle">https://twitter.com/justinfbrunelle</a> <a href="https://scholar.google.com/citations?user=0_Fdci8AAAAJ">https://scholar.google.com/citations?user=0_Fdci8AAAAJ</a> <a href="https://www.researchgate.net/profile/Justin_Brunelle">https://www.researchgate.net/profile/Justin_Brunelle</a> <a href="http://bit.ly/2lzCCtB">http://bit.ly/2lzCCtB</a> <a href="https://github.com/jbrunelle/">https://github.com/jbrunelle/</a>	
SECURITY CLEARANCE	Top Secret - Current	
CITIZENSHIP	USA	
RESEARCH INTERESTS	Emerging Technologies: cloud computing, big data, mobile, internet of things Web Science: digital preservation, web archiving, web crawling, information retrieval	
EDUCATION	<b>Old Dominion University</b> , Norfolk, VA USA  Ph.D., Computer Science, 2010-2016 <ul style="list-style-type: none"><li>• Dissertation Topic: <i>Scripts in a Frame: A Two-Tiered Crawling Approach for Archiving Deferred Representations</i></li><li>• Dissertation Proposal: <i>May, 2016</i></li><li>• Candidacy: <i>May, 2014</i></li><li>• Adviser: Dr. Michael L. Nelson</li><li>• Area of Study: Web Science and Digital Preservation</li></ul> M.S., Computer Science, May, 2010 <ul style="list-style-type: none"><li>• <i>Cum Laude</i></li><li>• Project: <i>MiBoard: Multiplayer Interactive Board Game</i></li><li>• Adviser: Dr. Irwin B. Levinstein</li><li>• Area of Study: Intelligent Tutoring Systems</li></ul> B.S., Computer Science, 2008 <ul style="list-style-type: none"><li>• <i>Cum Laude</i></li><li>• Minor in Computer Engineering</li><li>• Minor in Modeling and Simulation</li></ul>	

1. Kyle Dempsey, Justin Brunelle, G. Tanner Jackson, Chutima Boonthum, Irwin Levinstein, Danielle McNamara. "MiBoard: Multiplayer Interactive Board Game", 2009, *Workshop for Educational Games at the 14th International Conference on Artificial Intelligence in Education (AIED)*.
2. Justin F. Brunelle, Irwin B. Levinstein, Chutima Boonthum. "MiBoard: Metacognitive Training Through Gaming in iSTART", 2009, *VMASC Capstone Conference, April 2009*.
  - Best Paper in Track
3. Justin F. Brunelle, Kyle B Dempsey, G. Tanner Jackson, Chutima Boonthum, Irwin B. Levinstein, Danielle S. McNamara. "MiBoard: Metacognitive Training Through Gaming", 2009 *SCiP Conference, 2009*
4. Justin F. Brunelle, G. Tanner Jackson, Kyle Dempsey, Chutima Boonthum, Irwin B. Levinstein, Danielle S. McNamara. "Analysis of MiBoard as an iSTART Practice Tool", 2010, *FLAIRS-24, 2010*
5. Kyle Dempsey, G. Tanner Jackson, Justin Brunelle, Michael Rowe, Danielle McNamara. "MiBoard: Assessing Collaborative Learning Through Game-Based Practice", 2010, *FLAIRS-23, 2010*
6. Justin F. Brunelle "Filling in the Blanks: Capturing the Dynamic Web", 2012, *Doctoral Consortium - JCDL 2012*
7. Justin F. Brunelle, Michael L. Nelson, "An evaluation of caching policies for Memento TimeMaps", *Proceedings of JCDL 2013*, pp. 267-276. (Also available as Technical Report arXiv:1307.5685)
8. Justin F. Brunelle, Michael L. Nelson, Lyudmila Balakireva, Robert Sanderson, Herbert Van de Sompel, "Evaluating the SiteStory Transactional Web Archive With the ApacheBench Tool", *Proceedings of TPD L 2013*
9. Mat Kelly, Justin F. Brunelle, Michele C. Weigle, Michael L. Nelson, "On the Change in Archivability of Websites Over Time", *Proceedings of TPD L 2013*. (Also available as Technical Report arXiv:1307.8067)
10. Mat Kelly, Justin F. Brunelle, Michele C. Weigle, and Michael L. Nelson, "A Method for Identifying Personalized Representations in the Archives", *DLib Magazine, 19(11/12), 2013*
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", 2014, *Proceedings of JCDL 2014*
  - Best Student Paper
12. Justin F. Brunelle, Mat Kelly, Michele C. Weigle, Michael L. Nelson, "The impact of JavaScript on archivability", *International Journal on Digital Libraries, 2015*
13. Wesley Jordan, Mat Kelly, Justin F. Brunelle, Laura Vobrak, Michele C. Weigle, and Michael L. Nelson, "Mobile Mink: Merging Mobile and Desktop Archived Webs", *Proceedings of JCDL 2015*
  - Best Poster
14. 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, 16(3-4), pp. 283-301, 2015*

15. Justin F. Brunelle, Michele C. Weigle, and Michael L. Nelson, "Archiving Deferred Representations Using a Two-Tiered Crawling Approach", *Proceedings of iPRES 2015*, 2015. (Also available as Technical Report arXiv:1508.02315)
16. Justin F. Brunelle, Krista Ferrante, Eliot Wilczek, Michele C. Weigle, and Michael L. Nelson, "Leveraging Heritrix and the Wayback Machine on a corporate intranet: A case study on improving corporate archives", *DLib Magazine* 22(1/2), 2016
17. Justin F. Brunelle, Michele C. Weigle, and Michael L. Nelson, "Archival Crawlers and JavaScript: Discover More Stuff but Crawl More Slowly", *Proceedings of JCDL2017*, 2017

RESEARCH  
PROPOSALS

1. Various non-releasable proposals with varying success.
2. Justin F. Brunelle, George Despres. Save the MII! Digital Preservation for a Secure Intranet *MIP*. 2011. Unsupported.
3. Justin F. Brunelle, George Despres. Save the MII! Digital Preservation for a Secure Intranet *CI&T Innovation Grant*. 2011. Approved for 0.45 Staff Years of Effort.
4. Justin F. Brunelle. Security and Permissions in Digital Preservation *E540 I3 Proposal*. 2011. Approved for \$10,000 of Effort.
5. Justin F. Brunelle, George Despres. Client-side Archiving: Surfacing the Deep Web *CI&T Innovation Grant*. 2012. Unsupported.
6. Carlton Northern, Justin F. Brunelle. Capturing the Deep Social Web *MIP*. 2012. Unsupported.
7. Justin F. Brunelle. Human assisted crawling of dynamic content *E540 I3 Proposal*. 2012. Approved for \$10,000 of Effort.
8. Justin F. Brunelle, Widget Auditing and Caching *MIP*. 2013. Second round candidate, unsupported.
9. Dave Edwards, Justin F. Brunelle, Tactical and Interconnected Clouds *MITRE Capstone*. 2014. Unsupported.
10. Chris Basel, Marc Halley, Justin F. Brunelle, Data Migration Handbook *MITRE Capstone*. 2014. In review.
11. Justin F. Brunelle, Bruce Gorski, Juan Ruiz, Scott Lee, Tactical Cloud Architecture Analysis *Direct Funding*. 2014. Funded: 0.50 Staff Years of Effort.
12. Justin F. Brunelle, Tactical Cloud Architectures *MIP*. 2014. Second round candidate.
13. Justin F. Brunelle, Digital Libraries for Cultural Training *MIP*. 2014. Unsupported.
14. Justin F. Brunelle, Cloud Computing Forecasting White Paper Series *J85A I3 Proposal*. 2014. Unsupported.
15. Justin F. Brunelle, Cloud Computing Forecast Capability Development *J-Task*. 2014. In Submission.
16. Justin F. Brunelle, Carlton Northern, Patrick Benito, Integration of Emerging Technologies into Future Command Posts *Direct*. 2014. Unsupported.

17. Krista Ferrante, Justin F. Brunelle, Heritrix, the Wayback Machine, and Memento for improving corporate memory, *CI&T Innovation Grant*. 2015. Funded Pilot.
18. Krista Ferrante,, Eliot Wilczek, Justin F. Brunelle, Establishing automated crawlers for a corporate intranet, *CI&T Internal Funding*. 2016. Continuation.
19. Justin F. Brunelle, Joe Portner, Automatically Monitoring and Archiving IoT Environments, *MIP*. 2016. Second round candidate.
20. Joe Portner, Justin F. Brunelle, Active and Passive Monitoring of IoT Environments, *MIP*. 2017. Second round candidate.

OPEN SOURCE  
PROJECTS

Warrick and Brass (<http://code.google.com/p/warrick/>) - Recovering lost websites from the Web Infrastructure with the Memento Framework.

Mobile Mink (<https://github.com/Thing342/MobileMemento>) - Merging the mobile and desktop Webs

TECHNICAL  
REPORTS

1. Justin Brunelle, Bob Chadwick, Peter Kertzner, Scott Lee, Fred Stein, Jim Watters, “Crown Jewels Analysis (CJA) in Support of Army Brigade Combat Teams” *MTR100260*, September 13, 2011
2. Justin F. Brunelle, Jory T. Morrison, George Despres , “Installation and Experimentation of a Transactional Archive on a Corporate Intranet” *MTR114406*, October 31, 2011
3. Justin F. Brunelle, Michael L. Nelson, “Evaluating the SiteStory Transactional Web Archive with the ApacheBench Tool” *arXiv:1209.1811*, September 09, 2012
4. Geoffrey Raines, Carlos Ramos, Justin Brunelle, Thomas Fugate, “Cloud Computing Design Patterns”, Technical Report, *MTR130042*, 2013
5. Justin F. Brunelle, Bruce Gorski, Romanath Roy, Juan Ruiz, “Army Tactical Cloud Architecture”, Technical Report, 2014
6. Jory Morrison, Jackie Morin, Carlton Northern, Justin Brunelle, “Windows 8.1 Reference Document for the Army Training and Doctrine Command”, Technical Report, *MTR140384*, 2014
7. Justin Brunelle, Robert Daniels, Kimberly Halladay, Laila Moretto, “Features and Trade-offs of Triplestores and Graphstores”, Technical Report, 2014
8. Justin F. Brunelle, Karen Caraway, Don Faatz, Nancy Ross, Tom Suder, “July 2014 Federal Cloud Computing Summit Summary”, Technical Report, *Case Number 14-3272*, 2014
9. Justin F. Brunelle, Karen Caraway, Nicole Gong, Michael Kristan, Nancy Ross, Tom Suder, “January 2015 Federal Cloud Computing Summit Summary”, Technical Report, *Case Number 15-1080*, 2015
10. Justin F. Brunelle, Karen Caraway, Nicole Gong, Julia Packer, Jim Vann, Tim Harvey, Tom Suder, “July 2015 Federal Cloud Computing Summit Report”, Technical Report, *Case Number 15-3250*, 2015
11. Justin F. Brunelle, Jory Morrison, Kun Park, David Vincent, Lowell Asher, Scott Lee, “Measuring the Impact of Tactical Cloud Architectures at Brigade and Below Echelons”, Technical Report, *MTR150359*, 2015

12. Justin F. Brunelle, Demetrius Davis, Duy Huynh, Mano Malayanur, Bob Natale, Howard Small, Tim Harvey, Tom Suder, “January 2016 Federal Cloud Computing Summit Summary”, Technical Report, *Case Number 16-0921*, 2016
13. Justin F. Brunelle, Demetrius Davis, Nicole Gong, Duy Huynh, Michael Kristan, Mano Malayanur, Tim Harvey, Tom Suder, “July 2016 Federal Cloud Computing Summit Summary”, Technical Report, *Case Number 16-3496*, 2016
14. Justin F. Brunelle, Nic Van Balen, Kun Park, Lowell Asher, Scott Lee, “Recommendations for Internet of Things Laboratory Experimentation”, Technical Report, *MTR160457*, 2016
15. Justin F. Brunelle, Nic Van Balen, Kun Park, Lowell Asher, Scott Lee, “Impact of Internet of Things Adoption in the Command Post”, Technical Report, *MTR160457*, 2016
16. Justin F. Brunelle, Michele C. Weigle, and Michael L. Nelson, “Adapting the Hypercube Model to Archive Deferred Representations at Web-Scale”, Technical Report, arXiv:1601.05142, 2016
17. Justin F. Brunelle, Sunny Anand, Rick Cagle, Michael Kristan, Mari Spina, Katy Warren, Tim Harvey, Tom Suder, “February 2017 Federal Cloud Computing Summit Summary”, Technical Report, *Case Number 17-1286*, 2017
18. Colin Courtney, Aaron LaFrenz, Nicolas Van Balen, Nickyra Jackson, Justin F. Brunelle, Lowell Asher, Scott Lee, “U.S. Army Training and Doctrine Command Mission Command Integration Branch Cloud Migration Recommendations”, Technical Report, *MTR170170*, 2017
19. Nicolas Van Balen, Justin F. Brunelle, Lowell Asher, Scott Lee, “Cloud Enabled COE for FIE”, Technical Report, *MTR170171*, 2017
20. George McPherson, Justin F. Brunelle, Lowell Asher, Scott Lee, “Army Adoption of DIUx Process for Faster Innovation: A Thought Paper”, Technical Report, *MTR170169*, 2017
21. Patrick Benito, Marie Collins, CJ Rieser, Darshan Kadam, Mike Schoenfeld, Jeff Stein, Greg Kern, Carlton Northern, Mike Peck, Justin F. Brunelle, Tim Harvey, Tom Suder, “March 2017 Federal Mobile Computing Summit Report”, Technical Report, *Case Number JFB-001*, 2017

BOOK CHAPTERS Justin F. Brunelle and Chutima Boonthum-Denecke. Natural Language Processing Tools. *Cross-Disciplinary Advances in Applied Natural Language Processing: Issues and Approaches*. IGI Global, 2012. 9-23. Web. 7 Mar. 2012. doi:10.4018/978-1-61350-447-5.ch002

INVITED  
PRESENTATIONS

1. Justin F. Brunelle *Digital Preservation Research at ODU*, National RRAC Archivists Meeting, Fall, 2010
2. Justin F. Brunelle *Day in the Life of a Computer Scientist*, Ocean Lakes High School Academy Information Seminar, November, 2010
3. Justin F. Brunelle *Agile Engineering*, ODU Chapter of the ACM, November, 2011
4. Justin F. Brunelle *PERL and Warrick*, ODU Chapter of the ACM, February, 2012
5. Justin F. Brunelle *Day in the Life of a Computer Scientist*, ODU CS110 Guest Lecture, November, 2011

6. Justin F. Brunelle *What is Computer Science?*, Benjamin Syms Middle School, November, 2011
7. Justin F. Brunelle *Agile Engineering Principles*, Old Dominion University, September, 2012
8. Justin F. Brunelle Leveraging Academia in Government Cloud Computing Research, Federal Cloud Computing Summit, 2013
9. Justin F. Brunelle, Daniel Ruiz Session Lead: *MITRE-AMARC Collaboration Sessions*, Federal Big Data Summit, 2014
10. Justin F. Brunelle Panel: *MITRE-AMARC Collaboration Sessions*, Federal Cloud Computing Summit, 2014
11. Justin F. Brunelle Panel: *MITRE-AMARC Collaboration Sessions*, Federal Cloud Computing Summit, 2015
12. Justin F. Brunelle *MITRE-AMARC Collaboration Sessions*, Federal Cloud Computing Summit, 2016
13. Justin F. Brunelle *MITRE Hampton Roads 101*, ODU Chapter of the ACM, February 2016
14. Justin F. Brunelle *Panel Interview: Answering Your Cloud Computing Questions*, GovLoops DorobekINSIDER Live, May 2016
15. Justin F. Brunelle, Joseph Portner *Pizza My Mind: MITRE 101*, CNU, September 2016
16. Justin F. Brunelle *Building a Researcher*, New Horizons Governor School for Science and Technology, November 2016
17. Justin F. Brunelle *Various Topics*, MITRE Internal Technical Exchange Meetings, 2010-present

#### REFEREE SERVICE

1. MITRE Coordinator, Federal Technology Summit Series (2016-present)
2. MITRE Chair, Federal Cloud Computing Summit (2014-present)
3. Program Committee Member for FLAIRS Conference (FLAIRS 23-present)
4. Program Committee Member for AIMS Conference (2016-present)
5. Program Committee Member for JCDL (2016-present)
6. Program Committee Member for IARIA (2016-present)
7. Organizing Committee Member (posters/demos chair) for JCDL 2017
8. ARTSI Competition Judge (2010, 2012)
9. International Journal of Digital Libraries (2014)
10. Hampton Technology Student Association Competition Judge (2015)
11. Journal of Computer Engineering & Information Technology (2017)

WORKSHOP  
PARTICIPATION

1. IIPC General Assembly - Archiving the Future Web, April 2012
2. Web Archiving Cooperative workshop at Stanford, June 2012
3. Doctoral Consortium - JCDL, June 2012
4. How I Spend My Summer Vacations - WADL, July 2013
5. Federal Cloud Computing Summit, 2013-present (twice annually)
6. Federal Big Data Summit, June 2014
7. Doctoral Consortium - JCDL, June 2017
8. NASA Langley 100th Anniversary Centennial Symposium, July 2017

AWARDS

1. Gene Newman Award for best paper - Lockheed Martin General Sciences track 2008
2. Computer Science Department Outstanding Research Assistant, 2008
3. Birnbaum Scholarship award, SCiP 2009
4. MITRE Spot Award, 2012
5. MITRE Spot Award, 2013
6. Nominated for MITRE's Early Career Research Program, 2013
7. MITRE Director Award – 2014 Cloud Computing Summit, 2014
8. MITRE Spot Award – Federal Big Data Summit, 2014
9. Best Student Paper – DL2014, 2014
10. Best Poster – JCDL2015, 2015
11. Computer Science Department Outstanding Researcher, Fall 2015
12. MITRE SERA Award, 2016
13. MITRE Department Managers Award, 2016
14. SPARK Award, 2016

TEACHING  
EXPERIENCE

1. Introduction to Web Development (TCC, 2008 & 2009)
2. Introduction to Modeling and Simulation for Game Developers (TCC, 2008 & 2009)
3. Advanced Modeling and Simulation for Game Developers (TCC, 2009)
4. Consulted for City of VA Beach Parks and Rec's Video Game Design course (2011)
5. CS418/518: Web Programming, Old Dominion University (Fall 2016, 2017)

## STUDENTS

1. *Mentor, Ocean Lakes High School*: Brian Hsiung (2012)
2. *Mentor, New Horizon's Governor School*: Jackie Morin (2012)
3. *Mentor, New Horizon's Governor School*: John Herman (2013)
4. *Mentor, New Horizon's Governor School*: Radha Venkatesan (2014)
5. *Mentor, New Horizon's Governor School*: Wes Jordan (2015)
6. *Mentor, New Horizon's Governor School*: David Thames (2016)
7. *Mentor, Hickory High School*: Gavin Alberghini (2016-2017)
8. *Mentor, New Horizon's Governor School*: Emily Vogt (2017)
9. *Mentor, New Horizon's Governor School*: Ryan Lenfant (2018)
10. *PhD Committee, William & Mary*: Nicolas Van Balen (2017)
11. *PhD Committee, ODU*: Mat Kelly (TBD)

## TRAINING COURSES

Hands-on Hadoop (MITRE Institute 2012)  
Cloud Computing (MITRE Institute 2012)  
DoD Cloud Forum (MITRE Institute 2013)

## PROFESSIONAL EXPERIENCE

### **Lead Researcher - The MITRE Corporation (February 2010 - present)**

- Division Technical Integrator, responsible for assuring the quality, alignment, and success of division proposals submissions to the MITRE Internal research program. The divisions contains approximately 350 employees that submit over 100 proposals annually; typical success rates outperform company-wide averages with a successful acceptance rate of approximately 25%
- MITRE Chair of the Federal Technology Summit Series (including Mobile, Big Data, Cloud, Internet of Everything, Agile and DevOps, Future of Networking, and Cyber Security). Federal Cloud Summit Chair and lead whitepaper author; Federal Cloud Summits typically include over 200 attendees from industry, academia, FFRDC, and government (including CEOs, CTOs, and practitioners)
- Lead author for the Federal Cloud Computing Summit white paper series; creates recommendations for industry, government, and academia to help facilitate government adoption of cloud services
- MITRE subject matter expert and researcher for emerging technologies (big data, cloud, mobile, internet of things)
- Extensive data management experience, cloud computing studies, and innovation efforts throughout the federal government and within MITRE
- Task Lead: Impact of Tactical Cloud Computing on Command Post Computing Environment
- Task Lead: Impact of Adopting Emerging Technologies in the Command Post
- Lead multiple multi-disciplinary teams of varying sizes and demographics to the benefit of our tasks, projects, and sponsors

- Technical advisor on cloud computing and other emerging technologies to numerous Department of Defense and Intelligence Community sponsors
- Department and Hampton Roads site STEM outreach coordinator
- Site lab manager (2010-2014)
- PI/Co-PI of multiple cloud computing and web science projects
- Member of the Agile Engineering department; helped government sponsors and MITRE teams adopt agile development principles

**Adjunct Assistant Professor - Old Dominion University (August 2016 - present)**

- Designed and taught graduate Web development course

**Adjunct Instructor - Tidewater Community College (July 2008 - August 2009)**

- Designed and taught Web development, Introduction to Modeling and Simulation for Game development, Advanced Modeling and Simulation for Game development
- Week long STEM courses for high school students

**Lead Developer - iSTART (June 2003 - May 2010)**

- Research project at Old Dominion University
- Held positions of software tester, web developer, and lead programmer
- Designed and developed research tools and module elements
- Developed web-based multi- and single-player serious game applications for iSTART
- Lead a team of 2-3 developers in development of serious games
- Interviewed and evaluated candidate team members
- Lead and participated in communications with clients at the University of Memphis
- Design Specifications
- Progress reports
- Testing