

Justin F. Brunelle

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	Lead Software Application Developer The MITRE Corporation 903 Enterprise Pkwy , Ste 200 Hampton VA, 23666	<i>Office:</i> +(757) 896-8569 <i>Fax:</i> +(757) 826-831 <i>E-mail:</i> jbrunelle@mitre.org
SECURITY CLEARANCE	Top Secret - Current	
CITIZENSHIP	USA	
RESEARCH INTERESTS	Web Science: digital preservation, web archiving, web crawling, information retrieval Emerging Technologies: cloud computing, big data, mobile, internet of things	
EDUCATION	Old Dominion University , Norfolk, VA USA Ph.D., Computer Science, 2010-2016 <ul style="list-style-type: none">• Dissertation Topic: <i>Scripts in a Frame: A Two-Tiered Crawling Approach for Archiving Deferred Representations</i>• Dissertation: <i>May, 2016</i>• Candidacy: <i>May, 2014</i>• Adviser: Dr. Michael L. Nelson• Area of Study: Web Science and Digital Preservation M.S., Computer Science, May, 2010 <ul style="list-style-type: none">• <i>Cum Laude</i>• Project: <i>MiBoard: Multiplayer Interactive Board Game</i>• Adviser: Dr. Irwin B. Levinstein• Area of Study: Intelligent Tutoring Systems B.S., Computer Science, 2008 <ul style="list-style-type: none">• <i>Cum Laude</i>• Minor in Computer Engineering• Minor in Modeling and Simulation	
PEER-REVIEWED PUBLICATIONS	Kyle Dempsey, Justin Brunelle, G. Tanner Jackson, Chutima Boonthum, Irwin Levinstein, Danielle McNamara. "MiBoard: Multiplayer Interactive Board Game", 2009, <i>Workshop for Educational Games at the 14th International Conference on Artificial Intelligence in Education (AIED)</i> . Justin F. Brunelle, Irwin B. Levinstein, Chutima Boonthum. "MiBoard: Metacognitive Training Through Gaming in iSTART", 2009, <i>VMASC Capstone Conference, April 2009</i> . <ul style="list-style-type: none">• Best Paper in Track Justin F. Brunelle, Kyle B Dempsey, G. Tanner Jackson, Chutima Boonthum, Irwin B. Levinstein, Danielle S. McNamara. "MiBoard: Metacognitive Training Through Gaming", 2009 <i>SCiP Conference, 2009</i>	

- 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*
- Kyle Dempsey, G. Tanner Jackson, Justin Brunelle, Michael Rowe, Danielle McNamara. “MiBoard: Assessing Collaborative Learning Through Game-Based Practice”, 2010, *FLAIRS-23, 2010*
- Justin F. Brunelle “Filling in the Blanks: Capturing the Dynamic Web”, 2012, *Doctoral Consortium - JC DL 2012*
- Justin F. Brunelle, Michael L. Nelson, “An evaluation of caching policies for Memento TimeMaps”, *Proceedings of JC DL 2013*, pp. 267-276. (Also available as Technical Report arXiv:1307.5685)
- 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*
- 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)
- 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*
- 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 JC DL 2014*
- Best Student Paper
- Justin F. Brunelle, Mat Kelly, Michele C. Weigle, Michael L. Nelson, “The impact of JavaScript on archivability”, *International Journal on Digital Libraries*, 2015
- 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 JC DL 2015*
- Best Poster
- 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
- 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)
- 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
- RESEARCH PROPOSALS
- Justin F. Brunelle, George Despres. Save the MII! Digital Preservation for a Secure Intranet *MIP*. 2011. Unsupported.
- 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.

Justin F. Brunelle. Security and Permissions in Digital Preservation *E540 I3 Proposal*. 2011. Approved for \$10,000 of Effort.

Justin F. Brunelle, George Despres. Client-side Archiving: Surfacing the Deep Web *CI&T Innovation Grant*. 2012. Unsupported.

Carlton Northern, Justin F. Brunelle. Capturing the Deep Social Web *MIP*. 2012. Unsupported.

Justin F. Brunelle. Human assisted crawling of dynamic content *E540 I3 Proposal*. 2012. Approved for \$10,000 of Effort.

Justin F. Brunelle, Widget Auditing and Caching *MIP*. 2013. Second round candidate, unsupported.

Dave Edwards, Justin F. Brunelle, Tactical and Interconnected Clouds *MITRE Capstone*. 2014. Unsupported.

Chris Basel, Marc Halley, Justin F. Brunelle, Data Migration Handbook *MITRE Capstone*. 2014. In review.

Justin F. Brunelle, Bruce Gorski, Juan Ruiz, Scott Lee, Tactical Cloud Architecture Analysis *Direct Funding*. 2014. Funded: 0.50 Staff Years of Effort.

Justin F. Brunelle, Tactical Cloud Architectures *MIP*. 2014. Second round candidate.

Justin F. Brunelle, Digital Libraries for Cultural Training *MIP*. 2014. Unsupported.

Justin F. Brunelle, Cloud Computing Forecasting White Paper Series *J85A I3 Proposal*. 2014. Unsupported.

Justin F. Brunelle, Cloud Computing Forecast Capability Development *J-Task*. 2014. In Submission.

Justin F. Brunelle, Carlton Northern, Patrick Benito, Integration of Emerging Technologies into Future Command Posts *Direct*. 2014. Unsupported.

Kristsa Ferrante, Justin F. Brunelle, Heritrix, the Wayback Machine, and Memento for improving corporate memory, *CI&T Innovation Grant*. 2015. Funded Pilot.

Justin F. Brunelle, Joe Portner, Automatically Monitoring and Archiving IoT Environments, *MIP*. 2016. 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

“Crown Jewels Analysis (CJA) in Support of Army Brigade Combat Teams” Justin Brunelle, Bob Chadwick, Peter Kertzner, Scott Lee, Fred Stein, Jim Watters *MTR100260, September 13, 2011*

“Installation and Experimentation of a Transactional Archive on a Corporate Intranet” Justin F. Brunelle, Jory T. Morrison, George Despres *MTR114406, October 31, 2011*

“Evaluating the SiteStory Transactional Web Archive with the ApacheBench Tool” Justin F. Brunelle, Michael L. Nelson *arXiv:1209.1811, September 09, 2012*

- 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
- BOOKS 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 Justin F. Brunelle *Digital Preservation Research at ODU*, National RRAC Archivists Meeting, Fall, 2010
- Justin F. Brunelle *Day in the Life of a Computer Scientist*, Ocean Lakes High School Academy Information Seminar, November, 2010
- Justin F. Brunelle *Digital Preservation research at MITRE*, Langley All-hands, June 2011
- Justin F. Brunelle *Digital Preservation research at MITRE*, Site Innovation Council, September, 2011
- Justin F. Brunelle *Agile Engineering*, ODU Chapter of the ACM, November, 2011
- Justin F. Brunelle *PERL and Warrick*, ODU Chapter of the ACM, February, 2012
- Justin F. Brunelle *Day in the Life of a Computer Scientist*, ODU CS110 Guest Lecture, November, 2011
- Justin F. Brunelle *What is Computer Science?*, Benjamin Syms Middle School, November, 2011
- Justin F. Brunelle *Filling in the Blanks: Capturing Dynamically Generated Content*, E540 The MITRE Corporation, July, 2012
- Justin F. Brunelle *Agile Engineering Principles*, Old Dominion University, September, 2012
- Justin F. Brunelle *Tidewater Outreach Efforts*, Langley All-hands, September, 2012
- Justin F. Brunelle *Cloud Computing Contribution to the Warfighter Efforts*, Migrating to the Cloud TEM, May 2013
- Justin F. Brunelle *Leveraging Academia in Government Cloud Computing Research*, Federal Cloud Computing Summit, 2013
- Justin F. Brunelle, Daniel Ruiz Session Lead: *MITRE-AMARC Collaboration Sessions*, Federal Big Data Summit, 2014
- Justin F. Brunelle Panel: *MITRE-AMARC Collaboration Sessions*, Federal Cloud Computing Summit, 2014
- Justin F. Brunelle Panel: *MITRE-AMARC Collaboration Sessions*, Federal Cloud Computing Summit, 2015
- Justin F. Brunelle *MITRE-AMARC Collaboration Sessions*, Federal Cloud Computing Summit, 2016
- Justin F. Brunelle *MITRE Hampton Roads 101*, ODU Chapter of the ACM, February 2016

REFeree SERVICE	<p>MITRE Chair, Federal Cloud Computing Summit (2014-2016) Program Committee Member for FLAIRS Conference (FLAIRS 23-29) Program Committee Member for JCDL 2016 Assistant Reviewer to Dr. Michael L. Nelson, JCDL 2011, 2012 ARTSI Competition Judge, 2010, 2012 International Journal of Digital Libraries, 2014 Hampton Technology Student Association Competition Judge, 2015</p>
WORKSHOP PARTICIPATION	<p>IIPC General Assembly - Archiving the Future Web, April 2012 Web Archiving Cooperative workshop at Stanford, June 2012 Doctoral Consortium - JCDL, June 2012 How I Spend My Summer Vacations - WADL, July 2013 Federal Cloud Computing Summit, 2013-present (twice annually) Federal Big Data Summit, June 2014</p>
AWARDS	<p>Gene Newman Award for best paper - Lockheed Martin General Sciences track 2008 Computer Science Department Outstanding Research Assistant, 2008 Birnbaum Scholarship award, SCiP 2009 MITRE Spot Award, 2012 MITRE Spot Award, 2013 Nominated for MITRE's Early Career Research Program, 2013 MITRE Director Award – 2014 Cloud Computing Summit, 2014 MITRE Spot Award – Federal Big Data Summit, 2014 Best Student Paper – DL2014, 2014 Best Poster – JCDL2015, 2015 Computer Science Department Outstanding Researcher, Fall 2015 MITRE SERA Award, 2016 MITRE Department Manager's Award, 2016</p>
TEACHING EXPERIENCE	<p>Introduction to Web Development (TCC, 2008 & 2009) Introduction to Modeling and Simulation for Game Developers (TCC, 2008 & 2009) Advanced Modeling and Simulation for Game Developers (TCC, 2009) Consulted and aided in the design of City of Virginia Beach Parks and Recreation's Video Game Design course (2011) CS418/518: Web Programming, Old Dominion University (Fall 2016)</p>
TRAINING COURSES	<p>Hands-on Hadoop (MITRE Institute 2012) Cloud Computing (MITRE Institute 2012) DoD Cloud Forum (MITRE Institute 2013)</p>
PROFESSIONAL EXPERIENCE	<p>Lead Application Developer - The MITRE Corporation (February 2010 - present)</p> <ul style="list-style-type: none"> ● 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 ● 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 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
- Lead creation of design specifications
- Progress reports
- Testing management