

Stephen D. Smaldone

smaldone@cs.rutgers.edu
<http://www.cs.rutgers.edu/~smaldone>

Research Interests

Research interests lie in exploring and solving systems problems within the areas of mobile and pervasive computing, cloud computing and virtualization, and vehicular computing and social networking. Specific interests lie in exploring how to relate advances in operating systems and distributed systems research to the demands for performance, availability, security, and usability coming from real-world mobile and pervasive computing applications. General research interests include various topics in the areas of operating systems and distributed systems, including: file systems and storage, virtualization, and system security.

Education

- **Rutgers University**; New Brunswick, NJ
 - **Ph.D. in Computer Science**May 2011
Thesis: "Improving the Performance, Availability, and Security of Data Access for Opportunistic Mobile Computing" [T1]
Advisor: Prof. Liviu Iftode
 - **M.S. in Computer Science**January 2008
Advisor: Prof. Liviu Iftode
 - **B.S. in Computer Science**January 2002
- **Christian Brothers Academy**; Lincroft, NJ
 - **High School Diploma**May 1989

Prior Work Experience

- EMC Corporation; New York, NYAugust 2000 to Present
 - Principle Software Engineer (June 2011 to Present)
 - Manager, Program Delivery (March 2010 to June 2011)
 - Senior Project Manager (August 2000 to March 2010)
- AT&T – Local Services Division; Dayton, NJMarch 1999 to August 2000
 - Manager, Windows Server/Desktop Support
- Goldman, Sachs & Co.; New York, NYNovember 1998 to March 1999
 - Site Manager/Senior Analyst (Consultant)
- The CIT Group; Livingston, NJMarch 1998 to November 1998
 - Senior Systems Administrator (Consultant)
- AT&T Corporation; Basking Ridge, NJMay 1996 to March 1998
 - LAN/Systems Administrator (Consultant)
- Bell Communications Research (Now named Telcordia), Piscataway, NJJanuary 1995 to May 1996
 - Senior Systems Engineer (Consultant)
- Enterprise Digital, Inc., Freehold, NJJuly 1991 to December 1994
 - Customer Service/Systems Engineer

Distinctions

- Dean's Award for Excellence in Research (2009 – 2010) – Rutgers University; New Brunswick, NJ

Scientific Publications

Electronic copies of these papers are available at <http://www.cs.rutgers.edu/~smaldone>

Thesis

- [T1] "Improving the Performance, Availability, and Security of Data Access for Opportunistic Mobile Computing," Stephen Smaldone, PhD dissertation, Rutgers University, Piscataway, NJ, May 2011.

Refereed Conference Papers

- [C1] "Characteristics of Backup Workloads in Production Systems," Grant Wallace, Fred Douglass, Hangwei Qian, Philip Shilane, Stephen Smaldone, Mark Chamness, and Windsor Hsu, In *FAST 2012: Proceedings of the 10th USENIX Conference on File and Storage Technologies*, San Jose, CA, February 2012.
- [C2] "Target Container: A Target-Centric Parallel Programming Abstraction for Video-based Surveillance," Kirak Hong, Stephen Smaldone, Junsuk Shin, David Lillethun, Liviu Iftode, Umakishore Ramachandran, In *ICDSC'11: Proceedings of the 5th ACM/IEEE International Conference on Distributed Smart Cameras*, Ghent, Belgium, August 2011.
- [C3] "Ad-hoc Voice-based Group Communication," Lu Han, Stephen Smaldone, Pravin Shankar, James Boyce, Liviu Iftode, In *PerCom'10: Proceedings of the 8th Annual IEEE International Conference on Pervasive Computing and Communications*, Mannheim, Germany, April 2010.
- [C4] "Leveraging Smart Phones to Reduce Mobility Footprints," Stephen Smaldone, Benjamin Gilbert, Nilton Bila, Liviu Iftode, Eyal de Lara, Mahadev Satyanarayanan, In *MobiSys'09: Proceedings of the 7th Annual International Conference on Mobile Systems, Applications and Services*, Krakow, Poland, June 2009.
- [C5] "Working Set-Based Access Control for Network File Systems," Stephen Smaldone, Vinod Ganapathy, Liviu Iftode, In *SACMAT'09: Proceedings of the 14th ACM Symposium on Access Control Models and Technologies*, Stresa, Italy, June 2009.
- [C6] "Lane Reservation for Highways (Position Paper)," Nishkam Ravi, Stephen Smaldone, Liviu Iftode, Mario Gerla, In *ITSC'07: Proceedings of the 10th International IEEE Conference on Intelligent Transportation Systems*, Seattle, WA, September 2007.
- [C7] "FileWall: A Firewall for Network File Systems," Stephen Smaldone, Aniruddha Bohra, Liviu Iftode, In *DASC'07: Proceedings of the 3rd IEEE International Symposium on Dependable, Autonomic and Secure Computing*, Columbia, MD, September 2007.
- [C8] "FRAC: Implementing Role-Based Access Control for Network File Systems," Aniruddha Bohra, Stephen Smaldone, Liviu Iftode, In *NCA'07: Proceedings of the 6th IEEE International Symposium on Network Computing and Applications*, Cambridge, MA, July 2007.

Refereed Workshop Papers

- [W1] "Social Farm: Making Social Networks Work for Profit," Vivek Patak, Stephen Smaldone, Liviu Iftode, In *SoME'11: Proceedings of the 1st International Workshop on Social Media Engagement*, Hyderabad, India, March 2011.
- [W2] "The Cyber-Physical Bike: A Step Towards Safer Green Transportation," Stephen Smaldone, Chetan Tonde, Vancheswaran K. Ananthanarayanan, Ahmed Elgammal, Liviu Iftode, In *HotMobile'11: Proceedings of the 12th Workshop on Mobile Computing Systems and Applications*, Phoenix, AZ, March 2011.
- [W3] "RoadSpeak: Enabling Voice Chat on Roadways using Vehicular Social Networks," Stephen Smaldone, Lu Han, Pravin Shankar, Liviu Iftode, In *SNS'08: Proceedings of the 1st International Workshop on Social Network Systems* (in conjunction with EuroSys 2008), Glasgow, Scotland, April 2008.

Journal Articles

- [J1] "Recovering Internet Services from Operating System Failures," Florin Sultan, Aniruddha Bohra, Pascal Gallard, Iulian Neamtiu, Stephen Smaldone, Yufei Pan, Liviu Iftode, *IEEE Internet Computing*, March/April 2005.
- [J2] "Optimizing Storage Performance for Transient PC Systems," Stephen Smaldone, Benjamin Gilbert, Jan Harkes, Liviu Iftode, Mahadev Satyanarayanan, *ACM Transactions on Computer Systems (TOCS)*, V(N), Month-TBD 201x, pages pages-TBD, (*Accepted with minor revisions*).

Journal Articles (In Preparation)

- [*J1] "Implementing File Access Policies using FileWall," Stephen Smaldone, Aniruddha Bohra, Vinod Ganapathy, Liviu Iftode, To be submitted January 2013.

Patents

- [P1] "System and Method for Controlling a File System," Stephen Smaldone, Aniruddha Bohra, Liviu Iftode, Patent Pending. US Patent Application Number 20090043823.
- [P2] "The Cyber-Physical Bike: A Step Towards Safer Green Transportation," Stephen Smaldone, Ahmed Elgammal, Liviu Iftode, Provisional Patent Filed May 2010.
- [P3] "Forming Ad-Hoc Businesses from Online Social Networks," Stephen Smaldone, Vivek Pathak, Liviu Iftode, Provisional Patent Filed April 2009.
- [P4] "Systems and Methods for Vehicular Social Networking," Liviu Iftode, Stephen Smaldone, Lu Han, Pravin Shankar, Provisional Patent Filed March 2009.

Invited Papers

- [I1] "Bringing the Cloud Down to Earth: Transient PCs Everywhere," Mahadev Satyanarayanan, Stephen Smaldone, Benjamin Gilbert, Jan Harkes, Liviu Iftode, In *MobiCloud'10: Proceedings of the 1st International Workshop on Mobile Computing and Clouds*, Santa Clara, CA, October 2010.
- [I2] "Active Highways (Position Paper)," Liviu Iftode, Stephen Smaldone, Mario Gerla, James Misener, In *PIMRC'08: Proceedings of the IEEE Symposium on Personal, Indoor, and Mobile Radio Communications*, Intelligent Transportation Special Session, Cannes, France, September 2008.

Technical Reports (not published elsewhere)

- [TR1] "Improving Bicycle Safety through Automated Real-Time Vehicle Detection," Stephen Smaldone, Chetan Tonde, Vancheswaran Ananthanarayanan, Ahmed Elgammal, Liviu Iftode. Technical Report DCS-TR-665, Department of Computer Science, Rutgers University, Piscataway, NJ, August 2010.
- [TR2] "Safe Transient Use of Local Storage for VM-based Mobility," Stephen Smaldone, Jan Harkes, Liviu Iftode, Mahadev Satyanarayanan, Technical Report CMU-CS-10-110, Carnegie Mellon University School of Computer Science, Pittsburgh, PA, March 2010.
- [TR3] "Growing Business Organically on the Social Farm," Stephen Smaldone, Vivek Pathak, Liviu Iftode, Technical Report DCS-TR-659, Department of Computer Science, Rutgers University, Piscataway, NJ, October 2009.
- [TR4] "Citadel: Defensive Architectures for Computer Systems and Networks," Florin Sultan, Aniruddha Bohra, Pascal Gallard, Stephen Smaldone, Yufei Pan, Badri Nath, Liviu Iftode, Technical Report DCS-TR-554, Department of Computer Science, Rutgers University, Piscataway, NJ, March 2004.

Presentations

Conference Presentations

- “The Cyber-Physical Bike: A Step Towards Safer Green Transportation,” 12th Workshop on Mobile Computing Systems and Applications, Phoenix, AZ, March 2011.
- “Leveraging Smart Phones to Reduce Mobility Footprints,” 7th International Conference on Mobile Systems, Applications and Services, Krakow, Poland, June 2009.
- “Working Set-Based Access Control For Network File Systems,” 14th ACM Symposium on Access Control Models and Technologies, Stresa, Italy, June 2009.
- “RoadSpeak: Enabling Voice Chat on Roadways using Vehicular Social Networks,” 1st International Workshop on Social Network Systems, Glasgow, Scotland, April 2008.
- “Lane Reservation for Highways (Position Paper),” 10th International IEEE Conference on Intelligent Transportation Systems, Seattle, WA, September 2007.
- “FRAC: Implementing Role-Based Access Control for Network File Systems,” 6th IEEE International Symposium on Network Computing and Applications, Boston, MA, July 2007.

Other Presentations to the Research Community

- “Improving the Performance, Availability, and Security of Data Access for Opportunistic Mobile Computing,” Ph.D. Thesis Pre-Defense, Rutgers University, Piscataway, NJ, November 2010.
- “Leveraging Smart Phones to Reduce Mobility Footprints,”
 - Systems Design and Implementation (SDI) / Laboratory for Computer Systems (LCS) seminar series, Carnegie Mellon University, Pittsburgh, PA, June 2009.
 - Department of Computer Science colloquium series, Rutgers University, Piscataway, NJ, June 2009.
- “Working Set-Based Access Control For Network File Systems,” WINLAB Spring 2009 Research Review, Rutgers University, Piscataway, NJ, May 2009.
- “Lane Reservation for Highways (Position Paper),” 3rd Helsinki-Rutgers Ph.D. Student Workshop on Spontaneous Networking, Rutgers University, Piscataway, NJ, May 2008.
- “Monitoring and Controlling Network File Systems,” Ph.D. Qualifying Examination, Rutgers University, Piscataway, NJ, September 2007.
- “Implementing Network File System Policies with FileWall,” Phenix Workshop on Global Computing Systems, Rennes, France, December 2006.
- “FileWall: Implementing File Access Policies Using Access Context,” 1st Rutgers-Helsinki Ph.D. Student Workshop on Spontaneous Networking, Rutgers University, Piscataway, NJ, May 2006.
- “Building Reliable Systems Using Backdoors,” Phenix Workshop on Self-Healing and Fault Tolerant Systems, Rennes, France, December 2005.

Teaching

- Distributed Systems (01:198:545) (Graduate Course) – Teaching Assistant, Rutgers University, Piscataway, NJ, Spring 2010.
- Operating System Design (01:198:416) – Teaching Assistant, Rutgers University, Piscataway, NJ, Spring 2008.

Professional Activities

Program Committee Member

- SNS 2009: 2nd ACM Workshop on Social Network Systems, Nuremberg, Germany, March 2009.

Reviewing

- *Journals*: IEEE Transactions on Parallel and Distributed Systems (TPDS), ACM Transactions on Sensor Networks (TOSN), IEEE Transactions on Intelligent Transportation Systems (T-ITS), IEEE Transactions on Vehicular Technologies (TVT), IEEE Journal on Selected Areas in Communications (JSAC), IEEE Pervasive Computing, IEEE Internet Computing, New Generation Computing, IEEE Distributed Systems Online (DSO).
- *Conferences*: USENIX Conference on File and Storage Technologies (2012), IEEE International Conference on Social Computing (2010), International ICST Conference on MOBILE Wireless MiddleWARE, Operating Systems, and Applications (2010), IEEE Vehicular Technology Conference (Fall 2009), USENIX Annual Technical Conference (2008), International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services (2008), European Conference on Parallel and Distributed Computing (2007), IEEE International Symposium on Reliable Distributed Systems (2007), ACM International Symposium on High Performance Distributed Computing (2006).
- *Workshops*: Workshop on Global Computing Models and Technologies (2008).

Collaboration with Industry

- Patent (“System and Method for Controlling a File System”) licensed to BiTKOO®, LLC., North Hollywood, California. Currently being integrated by BiTKOO into the Keystone security software service.

Professional Societies

- Member of the ACM.
- Member of the IEEE.
- Member of the USENIX Association.
- Member of the Project Management Institute (PMI).

Certifications

- Project Management Professional (PMP).
- Information Technology Infrastructure Library V3 (ITIL).
- EMC Proven Professional - Associate.