Neha Narula

CONTACT INFORMATION

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RESEARCH INTERESTS

Distributed systems, storage, distributed databases, web applications, web and browser security, application-level caching, digital journalism, data mining, and content sharing

EDUCATION

Massachusetts Institute of Technology, Cambridge, Massachusetts

PhD, Computer Science **September 2010 – present**

- Expected graduation date: June 2014
- Advisor: Robert T. Morris

Massachusetts Institute of Technology, Cambridge, Massachusetts

MS, Computer Science **January 2008 – September 2010**

Thesis: "Distributed Query Execution on a Replicated and Partitioned Database" advised by Robert T. Morris.

Dartmouth College, Hanover, New Hampshire

BA, Computer Science and Mathematics **September 1999 – June 2003**

Undergraduate honors thesis: "Eliminating Complex Synchronization Instructions in the Contention-Free Case for Mutual Exclusion Algorithms" advised by Prasad Jayanti.

PUBLICATIONS

Narula, N. and R. Morris, "Executing Web Application Queries on a Partitioned Database", *USENIX Webapps*, Boston, Massachusetts, 2012.

Chandra, R., Kim, T., Shah, M. Narula, N. and N. Zeldovich, "Intrusion Recovery for Database-backed Web Applications", *Proceedings of the 23rd ACM Symposium on Operating Systems Principles*, Cascais, Portugal, 2011.

Yip, A., Narula, N., Krohn, M. and R.T. Morris, "Privacy-Preserving Browser-Side Scripting with BFlow", *In Proceedings of the ACM Eurosys Conference*, Nuremberg, Germany, 2009.

Yee, B., Sehr, D., Dardyk, G., Chen, J.B., Muth, R., Ormandy, T., Oksaka, S., Narula, N., and N. Fullagar, "Native Client: A Sandbox for Portable, Untrusted x86 Native Code", *In proceedings of the IEEE Symposium on Security and Privacy*, Oakland, California, 2010. **Best Paper Award**

Jayanti, P., Petrovic, S. and N. Narula, "Read/Write Based Fast-Path Transformation for FCFS Mutual Exclusion", In *SOFSEM 2005: Theory and Practice of Computer Science*, Springer, 2005.

OTHER

Narula, N. and R. T. Morris, "Designing a Toolkit for Distributed Storage in Web Applications", *Poster at the ACM Symposium on Operating Systems Principles*, Big Sky, Montana, 2009.

PROFESSIONAL EXPERIENCE

Massachusetts Institute of Technology, Cambridge, Massachusetts

Research Assistant **January 2008 – present**

Research in browser security, information flow control, web application scalability, parallel databases, distributed query execution, and application-level caching.

News.me/Digg, New York, New York

Data Scientist **June 2012 – August 2012**

Member of the team which launched the new Digg.com in six weeks.

Designed and implemented a system for analyzing shared content on Twitter and Facebook, and using these and other signals generated trending, new, and breaking news. Currently used on Digg.com.

Google, Mountain View, California

Senior Software Engineer **July 2003 – January 2011**

Designed and developed a Linux security sandbox for untrusted code running in the Native Client framework. Helped launch the research prototype of Native Client.

Designed and developed a highly available, distributed storage and serving system for large binary objects with five other engineers. Launched and maintained the system while supporting several production applications and serving gigabits of traffic per second.

Launched Froogle, Google's shopping website, into two new countries.

Member of the Google Foundation Steering Committee and Mentoring Committee.

Projects

Pequod **March 2011 – present**

Pequod is an application-level cache which can automatically compute and update cached objects.

Dixie **June 2009 – October 2010**

Dixie is a distributed query parser, planner, and executor which works against partitioned SQL databases. Dixie makes it easier for web application developers to scale their application to multiple databases and execute against replicated data.

Hearsay House **February 2012 – August 2012**

Hearsay House is an art installation for the Reykjavik Arts Festival, created by the collective 4.333. It takes the narrative of a seminal meeting between Ronald Reagan and Mikhail Gorbachev in 1986, and subverts it to tell many different interesting stories. Visitors are invited to engage and participate in sensor setups in the Hofdi House. The data from that engagement is then transformed and visualized in the Reykjavik Arts Museum.

Hyperlinker **May 2012**

Hyperlinker is a tool for authors to modify the way they use hyperlinks in their text. Hyperlinker uses attributes in link tags to auto-generate information about the links, and lets the user toggle links on and off. Hyperlinker was done as a final project for MAS.S61.

Talks

- RICON East, *Smarter Caching With Pequod* May 2013
- Future Insights Live, *Sharding and Scaling Your Database* May 2013
- Strangeloop, *Executing Queries on a Sharded Database*, September 2012
- Hacker School, *Scaling Web Application Datastores*, August 2012
- USENIX Webapps, *Web Application Queries on a Partitioned Database*, June 2012

Honors and Awards

- Mentor, NYUAD Hackathon for Social Good in the Arab World, 2013
- Eben Tisdale Fellowship (declined), 2009
- NSF Graduate Research Fellowship, 2007
- High Honors in Computer Science, 2003
- Member of Sigma Xi, 2003
- 2nd place at the Christopher Reeves Science Competition, 2003

Coursework

Theory of Computation (6.840), Natural Language Processing (6.863), Operating Systems (6.828), Networking (6.829), User Interface Design (6.831), Databases (6.830), TA for Distributed Systems (6.824), Participatory News (MAS.S61), Social TV (MAS.571)

Programming

Fluent in C, C++, Java, Python, bash scripting, LaTeX, and SQL