

# Phillipa Gill

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## RESEARCH INTERESTS

Computer networks, network measurement and characterization, network security, online privacy, online social networks and multimedia networking.

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## EDUCATION

**Ph.D., University of Toronto**, Department of Computer Science **2008 - 2012 (expected)**  
**Cumulative GPA:** 4.0/4.0  
**Advisors:** Yashar Ganjali, David Lie  
**Research areas:** Economic incentives for security and privacy, large-scale systems reliability

**M.Sc., University of Calgary**, Department of Computer Science **2006 - 2008**  
**Cumulative GPA:** 4.0/4.0  
**Advisors:** Anirban Mahanti, Zongpeng Li  
**Thesis:** YouTube Workload Characterization

**B.Sc., University of Calgary**, Department of Computer Science **2003 - 2006**  
**Cumulative GPA:** 3.92/4.0  
**GPA in Major Field:** 4.0/4.0

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## RELEVANT EXPERIENCE

**AT&T Labs – Research**, Florham Park, NJ **Sept. 2011 - Dec. 2011**  
*Visiting Researcher*  
*Supervisor:* Dr. Balachander Krishnamurthy  
Visiting researcher position in the area of Internet privacy. Studied economic incentives for online advertisers, publishers and users to collaborate in a market place for private information.

**Boston University**, Boston, MA **Oct. 2010 - Feb. 2011**  
*Visiting Scholar*  
*Supervisor:* Prof. Sharon Goldberg  
Visiting researcher position in the area of secure inter-domain routing. Developed a strategy for secure BGP deployment that creates economic incentives for protocol adoption on the Internet.

**Microsoft Research**, Redmond, WA **July 2010 - Oct. 2010**  
*Research Intern*  
*Supervisor:* Dr. Navendu Jain  
Research internship characterizing the reliability of data center networks. Performed a statistical analysis of a year's worth of error logs to understand properties and impact of network failures.

**MessageLabs/Symantec**, Toronto, ON **Jan. 2009 - Apr. 2009**  
*Software engineering course project (unpaid)*  
*Supervisor:* Matt Sergeant and Dan Bleaken  
Characterized the behavior of botnets using spam e-mail records from a collection of honeypot domains. **Received best graduate student project award in this course.**

**HP Labs**, Palo Alto, CA (located in Calgary, AB) **Apr. 2008 - July 2008**  
*Research Intern*  
*Supervisor:* Martin Arlitt  
Summer research internship in the area of Web workload characterization. Characterized and classified organizational Web service usage.

**Dept. of Computer Science, University of Calgary**, Calgary, AB **Jan. 2005 - Aug. 2006**  
*Research Assistant*  
*Supervisor:* Prof. Anirban Mahanti  
Research in multimedia networks, in particular periodic broadcast and quality adaptation. Studied Internet characteristics with emphasis on round-trip times. Also examined effectiveness of streaming media in cellular networks.

**TRI-Faculty Lab, University of Calgary**, Calgary, AB

*Computer Lab Supervisor*

*Supervisor:* Paul Kubicek

Troubleshooting and maintenance of a Windows 98 computer lab. Helped students using Microsoft applications.

Helped professors set up projectors for lecture presentations.

**May 2004 - Dec. 2004**

**iTiva Development Corporation**, Kelowna, BC

*Junior Engineer*

*Supervisor:* Tom Taylor

Used C# and VisualStudio.net to implement a Domain Name System (DNS) server. Worked in a pair programming environment to develop a file tracker for a distributed media application.

**June 2004 - Aug. 2004**

## PUBLICATIONS

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### JOURNAL

- Phillipa Gill, Michael Schapira, and Sharon Goldberg. Modeling on Quicksand: Dealing with the Scarcity of Ground Truth in Interdomain Routing Data. *ACM SIGCOMM Computer Communication Review (CCR)*. Jan. 2012.
- Phillipa Gill, Martin Arlitt, Niklas Carlsson, Anirban Mahanti, and Carey Williamson. Characterizing Organizational Use of Web-based Services: Methodology, Challenges, Observations, and Insights. *ACM Transactions on the Web (TWeb)*. Volume 5 Issue 4. Oct. 2011.
- Martin Arlitt, Niklas Carlsson, Phillipa Gill, Aniket Mahanti and Carey Williamson. Characterizing Intelligence Gathering and Control on an Edge Network. *ACM Transactions on Internet Technology (TOIT)* Volume 11 Issue 1. July 2011.
- Balachander Krishnamurthy, Walter Willinger, Phillipa Gill and Martin Arlitt. A Socratic Method for Validation of Measurement-based Networking Research. *Computer Communications*. Volume 34 Issue 1. Jan. 2011.
- Bianca Schroeder, Sotirios Damouras and Phillipa Gill. Understanding Latent Sector Errors and How to Protect Against Them. *Transaction on Storage (ToS)*. Volume 6, Issue 3. Sept. 2010.
- Phillipa Gill, Liqi Shi, Anirban Mahanti, Zongpeng Li, and Derek Eager. Scalable On-Demand Media Streaming for Heterogeneous Clients. *ACM Transactions on Multimedia Computing, Communications, and Applications*. Volume 5, Issue 1. Oct. 2008.

### CONFERENCE

- Lee Humphreys, Phillipa Gill, Balachander Krishnamurthy, and Elizabeth Newbury. Historicizing New Media: A content analysis of Twitter. *In proceedings of the Conference of International Communication Association*. Phoenix, USA. May 2012.
- Phillipa Gill, Michael Schapira and Sharon Goldberg. Let the Market Drive Deployment: A Strategy for Transitioning to BGP Security. *In proceedings of ACM SIGCOMM 2011*. Toronto, Canada. Aug. 2011. (Accept rate: 14% )
- Phillipa Gill, Navendu Jain and Nachi Nagappan. Understanding Network Failures in Data Centers: Measurement, Analysis, and Implications. *In proceedings of ACM SIGCOMM 2011*. Toronto, Canada. Aug. 2011. (Accept rate: 14% )
- Phillipa Gill, Yashar Ganjali, Bernard Wong and David Lie. Dude, Where's that IP? Circumventing Measurement-based IP Geolocation. *In proceedings of the 19th Usenix Security Symposium*. Washington D.C., USA. Aug. 2010. (Accept rate: 15% )
- Lee Humphreys, Phillipa Gill and Balachander Krishnamurthy. How Much is Too Much? Privacy Issues on Twitter. *In proceedings of the Conference of International Communication Association*. Singapore. June 2010.
- Bianca Schroeder, Sotirios Damouras and Phillipa Gill. Understanding Latent Sector Errors and How to Protect Against Them. *In proceedings of the 8th Usenix Conference on File and Storage Technologies (FAST 2010)*. San Jose, USA. Feb. 2010. (Accept rate: 24% )
- Phillipa Gill, Zongpeng Li, Anirban Mahanti, Jingxiang Luo and Carey Williamson. Network Information Flow in Network of Queues. *In proceedings of the 16th IEEE International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (MASCOTS)*. Baltimore, USA. Sept. 2008.
- Phillipa Gill, Martin Arlitt, Zongpeng Li, and Anirban Mahanti. The Flattening Internet Topology: Natural Evolution, Unlikely Barnacles or Contrived Collapse? *In proceedings of the Passive and Active Measurement (PAM) Conference 2008*. Cleveland, USA. Apr. 2008. (**Best Paper Award**; Accept rate: 32% )

- Phillipa Gill, Martin Arlitt, Zongpeng Li, and Anirban Mahanti. YouTube Traffic Characterization: A View From the Edge. *In proceedings of the ACM SIGCOMM Internet Measurement Conference (IMC)*. San Diego, USA. Oct. 2007. (Accept rate: 24% for full papers)
- Phillipa Sessini, Matei Leventer, and Anirban Mahanti. Video to Go: The Effects of Mobility on Streaming Media in a CDMA2000 1xEV-DO Network. *In proceedings of the ACM/SPIE Multimedia Computing and Networking Conference (MMCN)*. San Jose, USA. Jan. 2007. (Accept rate: 30%)
- Liqi Shi, Phillipa Sessini, Anirban Mahanti, Zongpeng Li, and Derek Eager. Scalable Streaming for Heterogeneous Clients. *In proceedings of ACM Multimedia 2006*. Santa Barbara, USA. Oct. 2006. (Accept rate: 16% )
- Phillipa Sessini and Anirban Mahanti. Observations on the Round-Trip Times of TCP Connections. *In proceedings of the Symposium on Performance Evaluation of Computer and Telecommunication Systems (SPECTS) 2006*. Calgary, Canada. July/Aug. 2006.

#### WORKSHOP & SHORT PAPERS

- Kathy Au, Billy Zhou, Zhen Huang, Phillipa Gill and David Lie. Short Paper: A Look at SmartPhone Permission Models. *In proceedings of ACM CCS Workshop on Security and Privacy in Smartphones and Mobile Devices*. Chicago, USA. Oct. 2011
- Balachander Krishnamurthy, Phillipa Gill, and Martin Arlitt. A Few Chirps About Twitter. *In proceedings of ACM SIGCOMM Workshop on Online Social Networks*. Seattle, USA. Aug. 2008. (Accept rate: 35% )
- Phillipa Gill, Martin Arlitt, Zongpeng Li, and Anirban Mahanti. Characterizing User Sessions on YouTube. *In proceedings of ACM/SPIE MMCN*. San Jose, USA. Jan. 2008.

#### TECHNICAL REPORT

- Phillipa Sessini. Modeling the Gaia Hypothesis: Daisyworld. *Dept. of Computer Science, University of Calgary*. Tech Report #2007-857-09. Apr. 2007.

#### DISSERTATION

- Phillipa Gill. YouTube Workload Characterization. MSc. Thesis, *Dept. of Computer Science, University of Calgary*. March 2008. (Defended: March 7, 2008).

### PRESENTATIONS

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#### **Security and Reliability for Internet-scale Services**

Academia: University of Toronto (3/2012), Stony Brook University (3/2012), Cornell University (3/2012), University of Illinois - Urbana-Champaign (3/2012), Boston University (2/2012), University of Illinois - Chicago (2/2012), University of British Columbia (2/2012), Northeastern University (2/2012)

Industry: Microsoft Research (Redmond, WA; 3/2012), AT&T Labs – Research (Florham Park, NJ; 3/2012)

#### **Understanding Network Failures in Data Centers: Measurement, Analysis, and Implications**

Industry: IBM Student Workshop for Frontiers of Cloud Computing (Hawthorne, NY; 12/2011)

Conference: SIGCOMM 2011 (Toronto, ON; 8/2011)

#### **Let the Market Drive Deployment: A Strategy for Transitioning to BGP Security**

Academia: Columbia University (11/2011), University of Calgary (7/2011), Princeton University (3/2011), Georgia Tech (3/2011)

Industry: AT&T Security Research Center (New York, NY; 11/2011),

AT&T Labs – Research (Florham Park, NJ; 10/2011)

Conference: SIGCOMM 2011 (Toronto, ON; 8/2011)

#### **Modeling Adoption of Secure BGP**

Industry: Boston Azure Users Group (12/2010)

#### **Dude, Where's that IP? Circumventing measurement-based IP geolocation**

Industry: Google Scholars' Retreat (San Francisco, CA; 6/2010),

AT&T Labs – Research (Florham Park, NJ; 12/2010)

Workshop: NSERC ISSNet Workshop (Ottawa, ON; 4/2010)

Conference: Usenix Security 2010 (Washington, DC; 8/2010)

#### **A Few Chirps About Twitter**

Workshop: Workshop on Online Social Networks (Seattle, WA; 8/2008)

#### **Characterizing User Sessions on YouTube**

Conference: Multimedia Computing and Networking (San Jose, CA; 1/2008)

#### **YouTube Workload Characterization: A View From the Edge**

Conference: Internet Measurement Conference (San Diego, CA; 10/2007)

**Video to Go: The Effects of Mobility on Streaming Media in a CDMA2000 1xEV-DO Network**

Conference: Multimedia Computing and Networking (San Jose, CA; 1/2007)

**Scalable Streaming for Heterogeneous Clients**

Conference: ACM Multimedia (Santa Barbara, CA; 10/2006)

**Observations on the Round-Trip Times of TCP Connections**

Conference: Symposium on Performance Evaluation of Computer and Telecommunication Systems (7/2006)

**TEACHING EXPERIENCE**

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**Department of Computer Science, University of Toronto**

*Teaching Assistant*

**SCI199Y:** Great Ideas in Computing

**Fall/Winter 2009-2010**

First year seminar course about various aspects of computer science for non-science majors.

**Teaching and Learning Center, University of Calgary**

*Instructor Skills Workshop*

**Aug. 2007**

Participated in a four day interdisciplinary workshop on improving teaching skills.

**Department of Computer Science, University of Calgary**

*Teaching Assistant*

**CPSC265:** Computer Architecture and Low-Level Programming

**Fall 2006**

Introductory assembly language programming class (SPARC Assembler).

**CPSC313:** Introduction to Computability

**Winter 2007**

Second year theory course on models of computation (eg., finite automata, grammars and Turing machines).

**CPSC325:** Hardware/Software Interface

**Fall 2007**

Second year hardware course covering more advanced assembly language, device drivers and interrupts.

Received **Teaching Assistant (TA) award** for this course.

**AWARDS**

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**Best Presentation Award, IBM Workshop for Frontiers of Cloud Computing**

**2011**

**Canada Anita Borg Finalist, Google**

**2009, 2010**

**Alexander Graham Bell Canada Graduate Scholarship (CGS), NSERC**

**2008 - 2010**

**Helen Sawyer Hogg Award, Dept. of Computer Science, University of Toronto**

**2008**

**Graduate Student Award, Alberta Learning**

**2008**

**Teaching Assistant Award, Dept. of Computer Science, University of Calgary**

**2007**

**Department Research Award, Dept. of Computer Science, University of Calgary**

**2007**

**Canada Graduate Scholarship (CGS), NSERC**

**2006 - 2008**

**Graduate Student Scholarship, iCORE**

**2006 - 2008**

**Dean's Research Excellence Award, University of Calgary**

**2006**

**Undergraduate Student Research Award (USRA), NSERC**

**2005, 2006**

**Louise McKinney Scholarship, Alberta Learning**

**2004**

**Dean's List, University of Calgary**

**2003 - 2006**

**Merit Award, University of Calgary**

**2003 - 2006**

**Alexander Rutherford Scholarship, Alberta Learning**

**2003**

**SERVICE AND OTHER ACTIVITIES**

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**PC member:** Workshop on Privacy and Digital Economy,

**2012**

Annual Computer Security Applications Conference (ACSAC)

**2012**

**Reviewer:** Computer Communications, International Conference on Performance Engineering

**2012**

**External Reviewer:** ACM SIGMETRICS 2011, ACM SIGCOMM Computer Communication Review (CCR)

**2011**

**External Reviewer:** Usenix Security 2010

**2010**

**External Reviewer:** Eurosys '09, COMSWARE '09, MASCOTS '09

**2009**

**Computer Science Graduate Society:** GSU representative

**2009 - 2010**

**Graduate Students Association 40th Anniversary Scholarship:** Reviewer

**2008**

**Computer Science Graduate Society:** VP Communications

**2007 - 2008**

**Computer Science Graduate Society:** Lab Representative

**2006 - 2007**

**International Genetically Engineered Machines (iGEM):** Team Member

**2006**

**Computer Science Undergraduate Society:** Volunteer

**2005**

**SCIberMENTOR:** Online mentor

**2004 - 2008**

**Child Find Alberta:** Volunteer IT consultant

**2004**