HONGYU GAO

Hongyugao2013@u.northwestern.edu

(847) 467-5343

Ford Design Center, Room 2.205

2133 Sheridan Road,

Evanston, IL 60201

Research Interests

My research interests span the areas of networking and security, with an emphasis on online social network anomaly detection and network security.

Education

- 2008.09 – present,   **Northwestern University, Evanston, IL 60201, USA**
  Ph.D. Student
  Dept. of Electrical Engineering and Computer Science
  Advisor: Prof. Yan Chen
  GPA: 3.96/4.0
- 2004.09 – 2008.07,   **Peking University, Beijing, P.R. China**
  B.S. in Computer Science
  GPA: 3.63/4.0 and the 7th/111 academic ranking

Professional Experience

2008.09 – present,   *Northwestern University, Evanston, IL, 60201, USA*
                 Research Assistant for Prof. Yan Chen, Department of EECS

- Designed Scavenger, a system to detect spam campaigns in online social network leveraging syntactic similarity and behavioral correlation stemmed from the highly coordinated spam message sending pattern.
  This research was featured in Wall Street Journal and MIT Technology Review.
- Designed and implemented UltraPAC, an automated tool that incorporates the BinPAC frontend but generates highly efficient protocol parser tailored for vulnerability signature matching.

2007. 05 – 2008.07,   *Peking University, Beijing, P.R. China*
                 Undergraduate Research Assistant, Department of CS

- Designed and implemented the GPU based frequent pattern mining algorithm. It utilizes the computational power and the SIMD programming paradigm of GPU and is much more efficient than the CPU counterparts.
- Participated in the HisTrace project, which builds an archive and query engine for historical web data. Achieved the removal of 85% redundant web pages and significantly boosted the speed and accuracy of the system.

Publications

Paper:

[1] Hongyu Gao, Yan Chen, Kathy Lee, Diana Palsetia and Alok Choudhary, Towards Online Spam Filtering in Social Networks, in the Proc. of *19th Network & Distributed System Security Symposium (NDSS)*, 2012.

[2] Hongyu Gao, Jun Hu, Tuo Huang, Jingnan Wang and Yan Chen, Security Issues in Online Social Networks, in IEEE Internet Computing, Volume 15, No. 4, July/August, 2011, pp. 56-63.

[3] Hongyu Gao, Jun Hu, Christo Wilson, Zhichun Li, Yan chen, Ben Y. Zhao, "Detecting and Characterizing Social Spam Campaigns", in Proceedings of ACM/USENIX Internet Measurement Conference (IMC) 2010.

[4] Zhichun Li, Gao Xia, Hongyu Gao, Yi Tang, Yan Chen, Bin Liu, Junchen Jiang and Yuezhou Lv, "NetShield: Matching with a Large Vulnerability Signature Ruleset for High Performance Network Defense", in Proceedings of ACM SIGCOMM 2010.

Poster:

[5] Hongyu Gao, Bingsheng He, Yifan He, Qiong Luo, Bo Peng, and Xiangye Xiao, "Frequent Pattern Mining on Graphics Processors" (poster), ACM SIGMOD 2008.

<u>Software Artifact</u>

UltraPAC: A C++ prototype implementation of the UltraPAC protocol parser generator. It is a component of the NetShield project, the vulnerability signature based intrusion detection system.
(http://www.nshield.org)

<u>Honors</u>

- 2008 – 2009,   Murphy Fellowship, Northwestern University
- 2008,   ACM SIGMOD Undergraduate Research Poster Competition winner
- 2004 – 2007,   Dean's Award for Studying Excellence, Peking University

<u>Teaching and Advising Experience</u>

- **Teaching Assistant** of EECS110 – Introduction to Programming (non-majors)**:**
  Gave lectures to the class. Led the quiz reviews and Q&A sessions.

<u>Professional Activities</u>

- Paper referee for: NDSS (2010), IEEE INFOCOM (2010, 2009), IEEE International Workshop on Quality of Service (IWQoS) (2010, 2009), GLOBECOM (2010)

<u>Thanks for reading</u>