Rezwana Karim

CONTACT INFORMATION

110 Frelinghuysen Rd
Department of Computer Science
Rutgers, The State University of New Jersey
Piscataway, NJ 08854

Voice: 732-986-8075
E-mail: rkarim@cs.rutgers.edu
WWW: `http://paul.rutgers.edu/~rkarim`

RESEARCH INTERESTS

Computer and Network security (with current focus on JavaScript and Web browser security), Program Analysis, Ubiquitous Computing

EDUCATION

Rutgers, The State University of New Jersey, New Jersey, USA

PhD. Student, Computer Science **August 2008 - (expected May 2013)**

- Adviser: Vinod Ganapathy
- CGPA: 3.97/4.00

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

B.Sc., Computer Science and Engineering **April 2002 - June 2007**

- CGPA: 3.89/4.00
- Dissertation Topic: "Development and Feasibility Analysis of a Web Service based Ubiquitous Computing Paradigm"
- Adviser: Md. Mostofa Akbar

JOURNAL ARTICLE

- *Fast, Memory-efficient Regular Expression Matching with NFA-OBDDs*
  Liu Yang*, **Rezwana Karim***, Vinod Ganapathy and Randy Smith.
  Computer Networks (COMNET) Journal. (*) Both authors contributed equally.

REFERRED CONFERENCE PAPERS

- *An Analysis of the Mozilla Jetpack Extension Framework*
  Rezwana Karim, Mohan Dhawan, Vinod Ganapathy and Chung-cheih Shan.
  26^{th} European Conference on Object-Oriented Programming (ECOOP 2012), Beijing, China, June 11-16, 2012.

- *Improving NFA-based Signature Matching using Ordered Binary Decision Diagrams*
  Liu Yang*, **Rezwana Karim***, Vinod Ganapathy and Randy Smith.
  (*) Both authors contributed equally.
  13^{th} International Symposium on Recent Advances in Intrusion Detection (RAID 2010), Ottawa, Ontario, Canada, September 15-17, 2010.

- *Ubicomp Secretary : A Web Service Based Ubiquitous Computing Application*
  Salmin Sultana, **Rezwana Karim**, Md. Mostofa Akbar and Sheikh Iqbal Ahamed.
  23^{rd} Annual ACM Symposium on Applied Computing (SAC 2008) beach at Vila Gal. in Fortaleza, Cear, Brazil, March 16-20, 2008.

SELECTED TALKS

- *Improving Signature Matching using Ordered Binary Decision Diagrams*
  13^{th} International Symposium on Recent Advances in Intrusion Detection Ottawa, Ontario, Canada, September 15-17, 2010.

- *Improving Signature Matching using Ordered Binary Decision Diagrams*
  Security workshop, Telecordia Technologies, New Jersey, USA, March, 2010.

Awards and honors

- Student Attendance Scholarship for RAID 2010, Ottowa, Canada. Awarded to only 3 students.
- Travel and attendance grant for CRA-W Graduate Cohort Workshop, 23-24 April, 2010, Bellevue Hilton, Bellevue, WA, USA.
- Deans Merit list Award. 2004-06. Awarded to exceptional GPA holder.
- University Merit Scholarship. 2003-06. Awarded to few top ranked students.

Academic & Research Experience

Mozilla, Mountain View, Caifornia, USA

Research Intern **May 2011 - August 2011**

Static analysis of browser extensions for security and compatibility with new browser architecture.

Rutgers, The State University of New Jersey, New Brunswick, New Jersey, USA

Research Assistant **January 2010 - Present**

Primary research focus is on network and system security using techniques from Programming Languages and Theory of Computation domain.

- Worked on browser security that mainly involves static analysis of JavaScript code. Developed a static analysis tool, Beacon, to detect capability leaks in modular JavaScript code.
- Developed NFA-OBDD, a tool for faster regular-expression based signature matching in Network Intrusion Detection System (NIDS). Internally, NIDS represent and operate these regular expressions as finite automata. The tool uses a novel technique for faster, memory efficient Nondeterministic finite automata operation that uses Ordered Binary Decision Diagrams (OBDDs).

Teaching Assistant **August 2008 - December 2009**

Computer Security, Operating Systems Design, Principles of Programming Languages, Introduction to Computer and their Applications.

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

Undergraduate Researcher **March 2006 - June 2007**

Development of the first Ubiquitous Computing paradigm on Web Service Based Architecture.

- Implemented Ubicomp Secretary, an interoperable, flexible Ubiquitous Computing paradigm, with tiny memory footprint, used to serve as a personal secretary.

Technical Skills

Programming: C, C++, Java, JavaScript, Prolog, UNIX shell script, 8086 Assembly.

Framework: IBM WALA, CUDD, Ruby on Rails, Apache Axis, ASP.NET

Database Systems: MySQL, Oracle, MS SQL Server

Tools: Matlab, LaTeX, Eclipse, MS Visual Studio.NET, and other common productivity packages.

Operating Systems: Microsoft Windows, Linux.

Relevant Courseworks

Software Security, Computer Networks, Programming Languages and Compiler, Operating Systems, Distributed Systems.

Related Course Projects

- *Pioneers*: A social network for researchers. The goal is to increase interaction and collaboration among researchers having same interest.
- ***P**ersonal **D**ata **M**anagement **A**cross **C**loud (PDMAC)*: The tool can be used to manage and synchronize user information and activity across multiple social networks.

Other Activities

- Vice-President, Computer Science Graduate Student Society (CSGSS), Rutgers.
- Member, Rutgers Women in Computer Science (RUWICS), Rutgers.

References

Available on request.