

# Edward Kaiser

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## Career Goals

My primary goal is to efficiently solve real-world problems in computing, networks, and security. Towards this goal, I actively seek challenging problems that require creative solutions. I am passionate about exploring and sharing new ideas and producing useful artifacts.

## Formal Education

### Portland State University, Oregon, USA

2003 – 2010

- Ph.D. in Computer Science (defended March 16, 2010)
- Thesis: *Addressing Adversarial Automation of Networked Applications*  
This thesis investigated methods to **detect** adversarial automation, to **combine** detectors to predict if a client is malicious, and to **disincentivize** automated behaviors. These research challenges were investigated in the contexts of cheating in multiplayer online games and resource consumption attacks against Web-based applications.

### University of Waterloo, Ontario, Canada

1998 – 2003

- Bachelor of Applied Science (B.A.Sc.) in Computer Engineering, Honours Co-op

## Peer Reviewed Publications

W. Feng, E. Kaiser, "**kaPoW Webmail: Effective Disincentives Against Spam**," *CEAS* 2010.

E. Kaiser, W. Feng, "**Helping TicketMaster: Changing the Economics of Ticket Robots with Geographic Proof-of-Work**," *IEEE Global Internet* 2010.

E. Kaiser, W. Feng, "**PlayerRating: A Reputation System for Multiplayer Online Games**," *NetGames* 2009.

E. Kaiser, W. Feng, T. Schluessler, "**Fides: Remote Anomaly-Based Cheat Detection Using Client Emulation**," *ACM CCS* 2009.

W. Feng, E. Kaiser, T. Schluessler, "**Stealth Measurements for Cheat Detection in On-line Games**," *NetGames* 2008.

E. Kaiser, W. Feng, "**mod kaPoW: Putting the 'PoW' into Proof-of-Work!**," *ACMSIGCOMM(demo)* 2008.

E. Kaiser, W. Feng, "**mod kaPoW: Protecting the Web with Transparent Proof-of-Work**," *IEEE Global Internet* 2008.

E. Kaiser, W. Feng, "**mod kaPoW: Mitigating DoS with Proof-of-Work**," *ACM CoNEXT* (poster) 2007.

W. Feng, E. Kaiser, "**The Case for Public Work**," *IEEE Global Internet* 2007.

W. Feng, E. Kaiser, W. Feng, A. Luu, "**The Design and Implementation of Network Puzzles**," *IEEE INFOCOM* 2005.

E. Kaiser, W. Feng, "**Publicly Auditable Puzzles**," *IEEE INFOCOM* (poster) 2005.

W. Feng, E. Kaiser, W. Feng, M. Le Baillif, "**Panoptes: Scalable Low-Power Video Sensor Networking Technologies**," *ACM TOMCCAP* 2005.

E. Kaiser, W. Feng, W. Feng, A. Luu, "**Reducing Malicious Traffic With IP Puzzles**," *ACM SIGCOMM* (poster) 2004.

W. Feng, B. Code, E. Kaiser, M. Shea, W. Feng, L. Bavoil, "**Panoptes: A Scalable Architecture for Video Sensor Networking Applications**," *ACM Multimedia* 2003.

# Edward Kaiser

## Employment History

- Research Assistant, Portland State University** 2003 – 2010
- Worked on PuzzleNet, kaPoW, and FIDES projects with advisor Dr. Wu-chang Feng
  - PuzzleNet and kaPoW research involved prototyping anti-Denial-of-Service Proof-of-Work systems
  - Fides research involved application integrity, specifically anti-cheating in online video games
- Research Internship, OGI at OHSU** 2001 – 2002
- Worked on Quasar and Panoptes projects with Dr. Wu-chi Feng
  - Quasar research involved bandwidth prediction for efficiently streaming video
  - Panoptes research involved prototyping the first streaming video sensor network
- Developer Internships, 724 Solutions** 2000 – 2001
- Worked on various backend framework and server projects
  - Developed modules for accessing the Bridge and Reuters news feeds
  - Developed QA framework and tools, including news feed emulators
- Technical Writer Internship, CRS Robotics** 1999
- Wrote operation and maintenance manuals for new robotic systems
  - Documented engineering processes for internal use
- Lab Assistant, McMaster University** 1997 – 1998
- Worked on sedimentation and chemistry projects with Dr. Pierre Brassard
  - Developed software measuring the effects of electrical current on microscopic sedimentation
  - Developed software to accurately run chemistry experiments as part of an industrial process

## Community Service

- Guide Dogs for the Blind** 2009 – present
- Sightmasters Club member and puppy sitter
- Engineering Discovery Showcase** 2009, 2010
- Volunteer PSU & Intel Networking Lab spokesperson
- Apprenticeships in Science & Engineering** Summers 2006 – 2010
- Co-mentor to two to four high school students on various computer science projects each summer
- Waterloo and ENSEIRB Internship Programs** 2004 – 2005
- Co-mentor to numerous undergraduate students on 2-month projects
- NOSSDAV Conference Organizer** 2005
- Handled conference registration, check in, and problems as they arose

## Hobbies & Sports

- Racquetball** 2007 – present
- Foosball** 2002 – present
- Networked Video Game Playing** 1994 – present
- Goju Ryu Karate, Blackbelt** 1989 – 1999