# Jem Berkes

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## PROFESSIONAL EXPERIENCE

**2014 – 2019** | **Research Lead, Galois Inc., USA**

- Principal Investigator (PI) for DDoS Defense project. Designed the technology and won major contract.
- Product Manager: responsible for developing requirements, understanding customer needs, planning engineering resources, product milestones, coordinating marketing
- Frequent presentations at industry conferences
- Provided recommendations and findings to managers and executives
- Technical writing (reports) and presentations

**2013** | **Data Analyst, Independent Contractor, Canada**

Created open source software (grepcidr) to process IPv4 and IPv6 data, funded by a data analytics firm. This software is available in all Linux distributions.

**2010 – 2012** | **Design Engineer (Advanced), Altera Corporation, Canada**

- Role as Project Manager with small team located across multiple countries
- "Big data" analysis, including novel computational methods, statistical analysis
- Developed FPGA modeling software: circuit simulation/optimization at 28 nm

**2005 – 2008** | **NSERC Researcher / Research Assistant, University of Waterloo, Canada**

Side channel attack research with RFID and smart cards. Discovered a new form of wireless security attack. Worked with Centre for Applied Cryptographic Research (CACR).

**1997 – 2009** | **Entrepreneur and small business owner, SysDesign, Canada and Australia**

Designed computer software (security and data management tools) for engineering and government customers. Performed sales, marketing, technical writing, and licensing. See NSERC press release about my business. Customers include:

> Canadian Space Agency ● Government of Alberta, ACSC ● Florida State Government, Division of Emergency Management ● Haansoft (Korea) ● U.S. Government, GSA ● Industrial Electronic Engineers, Inc.

## EDUCATION

**2005 – 2008** | **MSc in Electrical and Computer Engineering, University of Waterloo**

- NSERC Julie Payette Scholarship winner, offered to 24 top Masters candidates (6 in Engineering for all of Canada)
- NSERC André Hamer Prize
- Research areas: signal analysis, cryptography, communication security, hardware

**2000 – 2005** | **BSc in Computer Engineering, University of Manitoba**

- University Gold Medal: highest standing in Faculty of Engineering
- Medal in Computer Engineering: highest standing in Department
- Undergraduate minor in Management, with courses in Accounting and Finance

## BUSINESS SKILLS

- Strong analysis skills with both technical and financial data
- Project management experience (R&D and IT fields)
- Excellent writing skills
  - Reports, slide decks, whitepapers, status reports, marketing material, documentation, academic papers
- Very strong communication skills
  - Presentations to government audiences
  - Presentations at conferences
- Experience negotiating and drafting contracts
- Experience with both corporate and government contracting
- Strong team skills; enjoy interdisciplinary environments
- Expert in Microsoft Word, Excel, PowerPoint (and OpenOffice equivalents), Linux ecosystem

## PUBLICATIONS

Berkes, J. Design of a DDoS Attack-Resistant Distributed Spam Blocklist. In Proceedings of 2nd IASTED International Conference on Communication and Computer Networks (CCN), Cambridge, MA, November 2004.

Berkes, J., Schaub, D., Czyrnyj, T., and Olivier, J. Design of a Voice over IP System that Circumvents NAT. Technical report prepared for undergraduate design project, University of Manitoba, 2004.

Dagit, J., Winwood, S., Ritter, G., Berkes, J., and Wick, A. Code re-use attacks and their mitigation. Galois technical report, 2017. http://galois.com/reports/code-re-use-attacks-mitigation/

Dagit, J., Winwood, S., Ritter, G., Berkes, J., Wick, A., White, A., and Coker, G. Systems support for Hardware Anti-ROP. Galois technical report, 2017. http://galois.com/reports/systems-support-hardware-anti-rop/

## TECHNICAL & ENGINEERING SKILLS

- Fluent in many programming languages: C, C++, x86 assembler, Java, Unix shell script, Python, Perl
- Expertise in data processing, scripting, analysis
- Experience with many platforms, especially Linux, FreeBSD, DOS, Windows
- Expert knowledge of network communication protocols & security: IPv4, IPv6, TCP, DNS, SSL/TLS
- Expertise in automation, hardware design for security, cryptographic implementations, side-channel attacks
- Experience working with electronics circuits, schematics, lab equipment
- 2 years experience with semiconductor industry, CAD, and EDA tools

## AWARDS AND RESEARCH GRANTS

- University Gold Medal in Engineering and Medal in Computer Engineering, University of Manitoba (2005)
- NSERC Julie Payette scholarship winner, one of 6 "best PGS M candidates" in Engineering, all of Canada
- NSERC André Hamer prize winner, awarded to "most outstanding candidates" in graduate competition
- Finalist in 2001, 2002 UM/Management's Student Entrepreneur of the Year Competition