

Victor Marius Costan (龍望 / 龙望)

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Education

2009 – Present : Massachusetts Institute of Technology, Ph.D.

Ph.D. in Computer Science, expected 06/2014

Research direction: Security in Distributed Computer Systems, Secure Computer Architectures

Cambridge, MA

GPA: 4.9 / 5.0

2007 – 2008 : Massachusetts Institute of Technology, M.Eng.

Master of Engineering in Computer Science, received 06/2008

Thesis: *A Commodity Trusted Computing Module* – a high-level specification for a low-cost secure chip offering trusted execution (integrity and privacy) of procedures originating from un-trusted parties.

Cambridge, MA

GPA: 5.0 / 5.0

2003 – 2007 : Massachusetts Institute of Technology, B.S. (double major)

B.S. in Computer of Science, B.S. in Management Science, received 06 / 2007

Cambridge, MA

GPA: 4.9 / 5.0

Research

09/2009 – Present : MIT Computer Science and AI Lab, Research Assistant

Investigating novel trusted computing architecture with both low cost and high performance. Developed mechanism for sharing secret key between chips, so functionality can be spread across two specialized chips. Proved concept with a high-performance storage system where the trusted chips are a FPGA a smartcard. Designed FPGA functionality and directed fellow PhD student who implemented it.

02/2007 – 06/2008 : MIT Computer Science and AI Lab, Research Assistant

Researched the design of a successor to the TPM chip. Delivered design, fully functional JavaCard chip prototype, drivers, demo applications. Published results in two papers. Developed Ruby extension for PC/SC smartcards on Windows, Mac OSX, and Linux. Open sourced prototype code.

02/2004 – 11/2004 : MIT Computer Science Lab, Undergraduate Researcher

Integrated research project (editor leveraging structure recognition in text) into Eclipse via a plug-in.

Teaching

06/2010 – 02/2011 : MIT, CEO of IAP Web Programming Competition (6.470)

Revamped curriculum to make course more accessible. Developed new materials on HTTP concepts, git, deployment, HTML5 and CSS3. Lectured for 8.5 hours. Recruited staff of 7 student volunteers, ran staff meetings. Promoted course aggressively. Enrolled 165 students, a 100% increase over previous year.

02/2010 – 06/2010 : MIT, Teaching Assistant for Intro to Network Security (6.854)

Developed and graded homework and quizzes. Held office hours and review sessions. Delivered lecture on security in Web applications. Revamped own web app for homework collection and grading.

01/2010 – 02/2010 : MIT, Lecturer for IAP Web Programming Competition (6.470)

Developed supporting material and taught lectures on HTML, CSS, JavaScript, Ruby on Rails, security in Web applications. Open-sourced lecture slides based on S5. Designed and ran Facebook ad campaign.

04/2009 – 07/2009 : Google University, Instructor

Trained to deliver 4-hour introduction on Web technologies (HTML, CSS, JavaScript), to satisfy huge demand in the NYC office. Taught course 4 times and helped train an additional instructor.

02/2008 – 06/2008 : MIT, Teaching Assistant for Introduction to Algorithms (6.006)

Held recitations for 40 students. Helped create and grade exams and homework. Coded and deployed Ruby on Rails web app used by 80 students and 5 administrators. Keynote presentations published on MIT OpenCourseWare. Received very good (anonymous) student evaluations.

Pubs

Costan, V. and Devadas, S.: *Security Challenges and Opportunities in Adaptive and Reconfigurable Hardware*. Hardware-Oriented Security and Trust (HOST) 2011

Costan, V., Sarmenta, L., van Dijk, M. and Devadas, S.: *The Trusted Execution Module: Commodity General-Purpose Trusted Computing*. Smart Card Research and Advanced Applications (CARDIS) 2008

Work Experience

- 07/2008 – 07/2009 : Google Inc, Software Engineer** **New York, NY**
Developed tools and metrics to evaluate the quality of local business search results, and to help iterate on algorithms that promise to improve local search quality. Previously worked in a team of 5 responsible for local business search quality, optimizing and fine-tuning current search algorithms.
Technologies: Python, JavaScript, C++, Perforce, Google App Engine, Dojo Toolkit, XHTML, CSS
- 06/2007 – 09/2007 : Google Inc, Associate Product Manager Intern** **New York, NY**
Managed cross-functional team to launch AdWords features. Analyzed competition's recent efforts. Proposed signals for improved ad targeting balancing privacy with client needs. Wrote code identifying under-performing regions and verticals for local ads. Prototyped access delegation for internal wikis.
- 11/2004 – 05/2007 : MIT Lead Software Developer** **Cambridge, MA**
Developed and launched two multi-player educational games targeting Palm and Windows Mobile. Built game engines to facilitate agile development by abstracting systems issues (P2P networks, transactions, multi-threading). Led teams of 3-5 students, established sound development practices.
- 06/2006 – 09/2006 : Apple Inc, Software Engineer Intern** **Cupertino, CA**
Designed better network diagnostics and configuration via UPnP. Developed UPnP client library, and network status prototype with Cocoa UI. Wrote feature, design and testing specifications.
- 06/2005 – 09/2005 : Microsoft Corp, Software Engineer Intern** **Redmond, WA**
Annotated NFS source code for static analysis tool, fixed revealed security bugs. Wrote NFS installation manifests. Wrote and tested IPv6 support code. Delivered private Windows build for QA.
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Awards

- 10th place** in 6.370 (MIT Battlecode AI Competition)
Department Special Recognition Award for contributions to 6.006 (Introduction to Algorithms) as a TA
2nd Place in 6.470 (MIT Web Programming Competition), Facebook app on watching movies w/ friends
Best Marketing Plan in 15.812 (MIT Marketing Management Course)
Project Prize in 6.001 (MIT Structure and Interpretation of Computer Programs)
Best Software Development in 6.170 (MIT Laboratory in Software Engineering)
ACM ICPC World Finals (MIT's team): North American Champions 2004, 5th place overall
International Olympiad of Informatics: Gold Medal 2003, Silver Medal 2002
Central European Olympiad of Informatics: Gold Medal 2002, Silver Medal 2003, Bronze Medal 2001
Balkan Olympiad of Informatics: Gold Medal 2001
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Selected Personal Projects

- 2011 : Chrome Browser Plug-In** – Split browser window into multiple frames, to enable dashboards and side-by-side browsing in ChromeOS. Co-developed with MIT PhD student. Published in Chrome market, rated 4.5 / 5 stars. Prototyped first iteration in 4 hours, 1st prize at Boston Google Chrome hackathon.
- 2010 : Language Exchange Site** – Web-based language exchange tool combining instant messaging with flash cards. Innovative UI highlighting words unknown by chat partner. Led team of 4 to develop the initial version in 48 hours for Rails Rumble 2010. Used Ruby on Rails and jQuery.
- 2010 : Git Hosting Site** – Rails-based web application for quickly setting up Git repository hosting and collaboration. Useful subset of GitHub features and low requirements. Open-sourced on github.com
- 2009 : iPhone Application** – Stock trading simulation game drawing on real market prices. Developed iPhone application. Lead 2 other MIT students/alumni collaborating on general product and Ruby on Rails backend Web service. Application approved in iTunes Store. Open-sourced reusable iPhone code.
- 2008 : Facebook Application** – Ruby on Rails application built on the Facebook platform, providing assistance with planning social events. Contributed to open-source Rails plug-in facebooker used by application. Led team of 4 MIT students/alumni in the fbFund contest for Facebook applications.
- 2008 : Easy Ruby on Rails Deployment** – Ruby gem configures Debian / Ubuntu systems as single-server Ruby on Rails production environments, deploys and manages apps. Open-sourced at rubyforge.org