CIAO!

I'M **LUCA** INVERNIZZI.

// ABOUT ME

My passion is information security, and my expertise is malware. I am keen on building large-scale systems that discover hidden (malicious, usually) patterns in a sea of data. In my free time, I love to challenge myself by competing (or, sometimes, by running) hacking competitions.
I am a Ph.D. Candidate at the University of California, Santa Barbara. My main research focus is finding novel, robust ways to detect and prevent the spreading of malware. I am currently also researching in securing Android devices, and in maintaining (and breaking) one's privacy through traces left online.
In the past, I've been an active member of the GNOME open-source community, and I've had some fun in underwater robotics research.

// EDUCATION

2010 - 2014 | Ph.D. Candidate in Information Security at U.C. Santa Barbara

During my Ph.D. studies, I have been having fun researching on:

- Leveraging big-data analysis to discover malware being distributed online (with papers in the top infosec conferences: S&P, NDSS, CSS)
- How to better secure Android mobile devices (3 papers under submission, secured $1.1M grant[1])
- How to maintain some privacy online, and novel ways to invade it again (one paper under submission, and one ACSAC paper)
- How to teach information security with the help of hacking competitions

2010 - 2014 | Master's Student in Computer Science at U.C. Santa Barbara

GPA 4.0

2009 - 2010 | Visiting Researcher at the University of Hawaii

Besides snorkeling and hiking, at UH I've worked on a novel mathematical model to drive autonomous underwater vehicles. This work has been presented at the IEEE Conference on Decision and Control (CDC).

2007 - 2010 | "Diploma di Licenza" at the Sant'Anna School of Advanced Studies, Italy

Summa cum laude, full scholarship awarded as a winner of a nation-wide competition.

2007 - 2010 | Master's Degree in Control Engineering at the University of Pisa, Italy

Summa cum laude.

2008 | Visiting Researcher at U.C. Santa Barbara

In UCSB's mechanical engineering department, I've worked on a distributed algorithm to drive autonomous land vehicles to patrol an area. We have implemented this algorithm to make a group of (real) robotic vehicles collaborate with virtual ones. Part of this work is now part of the Player/Stage open-source framework.

2004-2007 | Bachelor's Degree in Computer Engineering at the University of Pisa, Italy

Summa cum laude, completed the *Path of Excellence* honors program.

// PROFESSIONAL EXPERIENCE

2015 | Google, Inc. - Software Engineering Intern

At Google, I've joined the anti-abuse team to research on how to improve search at the expense of cybercriminals.

// CONTACTS

+1 (805) 699 5096
luca@lucainvernizzi.net
@invernizzi
invernizzi
invernizzi

// SKILLS

Pentesting & hacking
Agile web design (mostly backend)
Creating large-scale scalable systems
Data mining
Robotics

// PUBLICATIONS

I have published papers in the fields of computer security and robotics.

- "Eyes of a Human, Eyes of a Program: Leveraging different views of the web for analysis and detection", J. Corbetta, L. Invernizzi, C. Kruegel, G. Vigna , *in Proceedings of the Research in Attacks, Intrusions and Defenses Symposium (RAID Symposium 2014)*
- "Ten Years of iCTF: The Good, The Bad, and The Ugly", G. Vigna, K. Borgolte, J. Corbetta, A. Doupé, Y. Fratantonio, L. Invernizzi, D. Kirat, Y. Shoshitaishvili , *in Proceedings of the USENIX Summit on Gaming, Games and Gamification in Security Education (3GSE 2014)*
- "Do You Feel Lucky? A Large-Scale Analysis of Risk-Rewards Trade-Offs in Cyber Security", Y. Shoshitaishvili, L. Invernizzi, A. Doupé, G. Vigna , *in Proceedings of the ACM Symposium on Applied Computing (SAC 2014)*
- "Nazca: Detecting Malware Distribution in Large-Scale Networks", L. Invernizzi, S. Miskovic, R. Torres, S. Saha, S. Lee, M. Mellia, C. Kruegel, G. Vigna , *in Proceedings of the ISOC Network and Distributed System Security Symposium (NDSS 2014)*
- "Message In A Bottle: Sailing Past Censorship", L. Invernizzi, C. Kruegel, G. Vigna , *in Proceedings of the Annual Computer Security Applications Conference (ACSAC 2013)*
- "You Are What You Include: Large-scale Evaluation of Remote JavaScript Inclusions", N. Nikiforakis, L. Invernizzi, A. Kapravelos, S. Van Acker, W. Joosen , C. Kruegel, F. Piessens, G. Vigna , *in Proceedings of the ACM Conference on Computer and Communications Security (CCS 2012)*
- "EVILSEED: A Guided Approach to Finding Malicious Web Pages", L. Invernizzi, S. Benvenuti, P. Milani Comparetti, M. Cova, C. Kruegel, G. Vigna , *in Proceedings of the IEEE Symposium on Security and Privacy (SSP 2012)* (AT&T NYU CSAW best security paper '12 finalist)

2012 - 2014 | The Activity Exchange - Project Lead
At ActivityX, I've been in charge of designing and running a scalable service[2] that collects, normalizes, and distributes sensitive health data (such as workouts and blood pressure readings) coming from 20+ sources (such as Fitbit and AppleHealth) and 200k+ users. This system is currently powering Achievemint.com[3], and Humana Vitality[4].
2013 | Narus - Research Intern
At Narus, I've designed Nazca, a system capable of discovering and tracking malicious downloads in the network traffic of ISPs. This work resulted in a NDSS'13 paper, a patent, and has sparked the interest of the press[5].
2011 | Appfolio - Engineering Intern, Pentester
At Appfolio, I've pentested the various RoR web apps developed there, including a payment-processing system handling the financial information of 100k+ users. I've fixed tens of vulnerabilities, ranging from logic flaws, XSSs, CSRFs, and authentication/authorization flaws. I left the company with a set of tools (integrated in their CI system) that perform static and dynamic analysis on the various products to alert the developers of possible security vulnerabilities before they go live.
2010 | Google Summer of Code - Engineering Intern
During my summer, I've extended Getting Things GNOME![6], a task manager for the Linux desktop, to support multiple synchronization services (such as Bugzilla, Evolution, RememberTheMilk,...). People liked the new GTG :)[7]
2009 | Biorobotics Institute, Sant'Anna - Web Designer
I've created and maintained the website for ANGELS [8], an European project in underwater robotics.

// OPEN SOURCE CONTRIBUTIONS

2010-2012 | The GNOME foundation - Core Developer & Mentor
I like participating in the open-source world, whenever I have time. In this period, I've been a core developer of "Getting Things GNOME"[6], and I've become a member of the GNOME Foundation[9]. I've also mentored five nice international students for several editions of the Google Summer of Code[10] and the [11] Gnome's Outreach Program for Women.
2009-now | Open Source :)
Over time, like any well-behaved developer I've shared online a few niche projects that other people are using (such as Scapy's support for HTTP[12], which a few companies, such a Lastline and Google, are currently using in some of their projects, and Chrisper[13], a style-checker for academic papers). I've also made many contributions, big and small, to popular open-source projects (PLAYER robotic framework, Flask-Security, Eucalyptus...). Check out my Github[14] page for a collection of a few of those.

// COMPETITIONS

2010-now | Hacking Competitions - Hacker
I've played in tens of hacking competitions, including the DEFCON CTF in Las Vegas, with my team Shellphish[15]. With the team, I've also designed and organized for four years the iCTF[16], the biggest academic hacking competition, with more than 1k players from all over the globe.
2008 | European Space Agency Robotic Challenge - Robot Hacker
In this competition, ESA challenged university students to design and build a robotic vehicle capable of retrieving samples in a steep lunar crater. After winning a €40k grant, my team from the SSSUP university built an hexapod[17] that managed to be selected up to the final in Tenerife. Unfortunately, while our robot was in the crater it started raining (in a very lunar fashion), which shorted our robot's circuits :)

- “Geometric control for autonomous underwater vehicles: overcoming a thruster failure”, M. Andonian, D. Cazzaro, L. Invernizzi, M. Chyba, S. Grammatico *, in Proceedings of the IEEE Conference on Decision and Control (CDC 2010)*
- “Trajectory Design for Autonomous Underwater Vehicles for Basin Exploration”, M. Chyba, D. Cazzaro, L. Invernizzi, M. Andonian *, in Proceedings of the International Conference on Computer and IT Applications in the Maritime Industries (COMPIT 2010)*
- “A Geometric Approach to Trajectory Design for an Autonomous Underwater Vehicle: Surveying the Bulbous Bow of a Ship”, R. N Smith, D. Cazzaro, L. Invernizzi, G. Marani, S. K Choi, M. Chyba *, in Acta applicandae mathematicae, 2010*

// PATENTS

- (Pending approval) Detecting Malware Infestations in Large-Scale Networks, L. Invernizzi, S. Miskovic, R. Torres, S. Saha, S. Lee, M. Mellia, C. Kruegel, G. Vigna

// IN THE PRESS

In the past years I have been lucky enough that people have taken interest in my work and wrote articles about it. Here's a collection of the ones I am most proud of:

- New detection system spots zero-day malware[20]
- Zoom out for a view of malware, say boffins[5]
- Enterprising research IDs zero day malware[21]
- UCSB Security Researchers To Help Too-Trusting Smartphone App Users[1]
- World's Largest Computer Hacking Contest Happening at UCSB[22]
- Cyberteams duke it out in the World Series of hacking[23]
- Getting things done with Linux to-do list programs[24]
- Germany's CESAR crowned king of rovers in ESA’s Robotics Challenge[25]

// LINKS

To avoid having to type in these links, You can visit www.lucainvernizzi.net for an online version of this CV.

[0] http://0.0.0.0:4567/files/luca_invernizzi_resume.pdf
[1] http://campustechnology.com/articles/2014/09/18/ucsb-security-researchers-to-help-too-trusting-smartphone-app-users.aspx?admgarea=news
[2] http://www.theactivityexchange.com/flow.html
[3] http://www.achievemint.com/
[4] https://www.humana.com/vitality/
[5] http://www.theregister.co.uk/2014/02/18/zoom_out_for_a_view_of_malware_say_boffins/
[6] http://gtgnome.net/
[7] http://www.omgubuntu.co.uk/2009/12/getting-things-gnome-gets-rtm-sync-geolocation-ui-tweaks-much-love-from-me
[8] http://sssa.bioroboticsinstitute.it/projects/ANGELS
[9] http://www.gnome.org/
[10] https://developers.google.com/open-source/soc/?csw=1
[11] https://wiki.gnome.org/OutreachProgramForWomen
[12] https://github.com/invernizzi/scapy-http
[13] https://github.com/invernizzi/Chrisper
[14] https://github.com/invernizzi/
[15] https://ctftime.org/team/285
[16] http://itf.cs.ucsb.edu/
[17] http://4.bp.blogspot.com/_PZedSw-39RQ/SSqXB53sdSI/AAAAAAAAAAc/WuE0kscIj_4/s1600/pESApod_moon.jpg
[18] http://0.0.0.0:4567/blog
[19] http://scholar.google.com/citations?user=4CEVnEMAAAAJ&hl=en
[20] http://www.net-security.org/malware_news.php?id=2712
[21] http://www.crn.com.au/News/372515,enterprising-research-ids-zero-day-malware.aspx)
[22] http://www.keyt.com/news/worlds-largest-computer-hacking-contest-happening-at-ucsb/23363462
[23] http://www.cnbc.com/id/101179977
[24] http://arstechnica.com/information-technology/2009/07/getting-things-done-with-linux-todo-list-programs/
[25] http://www.esa.int/Education/Germany_s_CESAR_crowned_king_of_rovers_in_ESA_s_Robotics_Challenge2
[26] https://www.cs.ucsb.edu/~vigna/
[27] https://www.cs.ucsb.edu/~chris/
[28] https://www.cs.ucsb.edu/~kemm/
[29] http://alessiosignorini.com/
[30] http://lucafoschini.com/
[31] http://www.linkedin.com/in/jwalker