

José Jair Santanna

Researcher, Lecturer, Network Security Specialist & (Big) Data Analyst

Contact

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Languages

portuguese native
english fluency
spanish comprehension
dutch comprehension

Programming

Bash, Python, C#, SQL
PIG, Spark & Impala

Professional Objective

I am currently a PhD candidate at University of Twente (ending in 2017) in a research group called Design and Analysis of Communication Systems (DACS). My research is founded by the European commission via a project focus in network of excellence, called Flamingo. In addition, my research is funded by one of the main Dutch national Organisation for Scientific Research (NWO) in a project called Distributed Denial of Service Defence (D3).

I am interested in a research & development position with focus on network security and the use of big data technologies to improve network data analysis. A position where I can transfer my enthusiasm, knowledge, skills and experience into meaningful innovation that improve the security in computer networks, specially in the Internet.

Education

- 2013–Now **Doctor** in Computer Science University of Twente, The Netherlands
"The DDoS as a Service Phenomenon".
Supervisor: Prof. dr. ir. Aiko Pras
- 2010–2012 **Master** in Computer Science Federal University of Rio Grande do Sul, Brazil
"A BPM-based Solution for Inter-domain Circuit Management". The outcome of this work generated a product still in use by the Brazilian National Education and Research Network (RNP) (Link: <http://meican.cipo.rnp.br/>).
Supervisor: Prof. dr. Lisandro Zambenedetti Granville
- 2005–2010 **Bachelor** in Computer Engineer Federal University of Pará, Brazil
"A Comparative Evaluation of DCCP Protocol in Mesh Networks."
Supervisor: Dr. Kelvin Lopes Dias

Experience

Technical Adviser

- 2016 **To the Yokohama National University** Japan
For the production of a report on "Reflection & Amplification DDoS attacks" requested by the *Japanese Ministry of Internal Affairs and Communications*.
- 2016 **To the Dutch National Cyber Security Center and the Scientific Research & Documentation Center** The Netherlands
For the production of a report on "Cyber metrics 2016: DDoS and Malware" requested by the *Dutch Ministry of Security and Justice*.

Assistant Professor

- 2012–2013 **University of Santa Cruz do Sul (UNISC)** Santa Cruz do Sul, Brazil
Tasks & Responsibilities: Supervise students and teach the following courses: Computer Networks, Computer Network Management, and Digital Systems.

Guest Lecturer

- 2015 & 2016 **Product Design to Online Business (course)** University of Twente, The Netherlands
Audience: bachelor students of industrial engineering and business information technology.
- 2015 **Network Security (course)** University of Twente, The Netherlands
Audience: master and bachelor students of computer science, electrical engineer, and telematics from the University of Twente, 3TU cyber security, and members of ICT labs.
- 2015 **Cybercrime & Cybersecurity (minor)** University of Twente, The Netherlands
Audience: bachelor students from University of Twente, European Research Center for Information (ERCIS), Westfälische Wilhelms - Universität Münster, Universität Innsbruck, and University of Leicester.

Student Supervisor

Among 10 supervised students: 5 decided to follow towards the next academic degree^[†], PhD or MSc, 2 received the MSc degree cum laude^[◇], 2 won the best paper award in international conferences^[*], and 1 won the second place of a renowned Dutch national prize (KIVI/Defensie & Veiligheid) for her thesis^[★].

[M.Sc. Degree] **Justyna Chromik**^{† ◇ * ★}, **Wouter de Vries**^{† *}, **Joey de Vries**[◇], **Mark Wierbosch**, and **Jarmo van Lenthe**.

[B.Sc. Degree] **Roeland Krak**[†], **Max Kerkers**[†], **Dirk Maan**[†], **Jochum Börger**, and **Guilherme Dressler**.

International Conference Reviewer

The first four listed conferences are among the top well ranked related to the Committee on Network Operation and Management (CNOM), which is a renowned technical committee part of the IEEE Communications Society. For each conference we present the acronym, the full name, the acceptance rate of paper submitted divided by published* (according www.cs.ucsb.edu/~almeroth/conf/stats), and the h-index* (according Google scholar).

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|------------|---|------------|
| CNSM | International Conference on Network and Service Management | 17.6% 18 |
| NETWORKING | IFIP Networking | 23.8% 22 |
| IM | IFIP/IEEE Integrated Management | 27.2% 18 |
| NOMS | IEEE/IFIP Network Operations and Management Symposium | 28.9% 22 |
| AIMS | Autonomous Infrastructure, Management and Security | 31.8% 9 |
| SCC | IEEE Symposium on Computers and Communications | 46.4% 20 |
| APNOMS | Asia-Pacific Network Operations and Management Symposium | – 10 |

*Last checked April 7, 2016.

Software Developer

- 2015–Now **Distributed Denial of Service Attacks Database (DDoSDB)**
Link: <http://www.ddosdb.net>
An initiative to develop the largest open database with DDoS attacks.
Languages: Python, Bash, Pig Latin & Apache Impala
- 2010–2011 **Management Environment of Inter-domain Circuits for Advanced Networks (MEICAN)**
Link: <http://meican.cipo.rnp.br/>
Development of an Executable Network Management Policies Editor sponsored by the Brazilian National Education and Research Network (RNP).
Language: WS-BPEL
- 2009 **Support for Planning Sustainable Electrical Power Generation via Vegetable Oil.**
Desktop application part of a Ph.D. thesis [link] sponsored by a subsidiary (Eletronorte) of the major Brazilian power utility (Eletrobrás).
Language: C#.Net & MySQL

Presentations

More than 30 presentations in the last 3 years (available on my slideshare.net/jjcsantanna), among those I highlight:

- 2015 **Oral Presentation** at Logius (part of the Dutch Ministry of the Interior and Kingdom Relations).
- 2015 **Oral Presentation** to the Dutch National Management Organization of Internet Providers (NBIP).
- 2015 **Oral Presentation** to the Dutch National Cyber Security Centrum (NCSC).
- 2013 & 2015 **Oral Presentation** at the 31th and 36th IRTF Network Management Research Group (NMRG).

Awards

- 2015 **Best Ph.D. 'Elevator Pitch' (1st Place)** CTIT Symposium, University of Twente
- 2015 **Best Poster (3rd Place)** CTIT Symposium, University of Twente
- 2015 **Best Paper Award** Autonomous Infrastructure, Management and Security Conference
- 2015 **Top Papers Nomination** Brazilian Symposium on Computer Networks and Distributed Systems
- 2010 **Student Award (3rd Place)** Computer Engineer, Federal University of Pará, Brazil

Scientific Appendix

Publications

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DDoS 3.0 - How Terrorists Bring Down the Internet

Aiko Pras, José Jair Santanna, Jessica Steinberger, Anna Sperotto
International GI/ITG Conference, MMB & DFT, 2016

Booter websites characterization: Towards a list of threats

Justyna Joanna Chromik, José Jair Santanna, Anna Sperotto, Aiko Pras
Brazilian Symposium on Computer Networks and Distributed Systems (SBRC), 2015

Inside Booters: An Analysis on Operational Databases

José Jair Santanna, Romain Durban, Anna Sperotto, Aiko Pras
IFIP/IEEE International Symposium on Integrated Network Management (IM), 2015

Booters - An Analysis of DDoS-as-a-Service Attacks.

José Jair Santanna, Roland Rijswijk-Deij, Anna Sperotto, Rick Hofstede, Mark Wierbosch, Lisandro Zambenedetti Granville, Aiko Pras
IFIP/IEEE International Symposium on Integrated Network Management (IM), 2015

How Asymmetric Is the Internet? A Study to Support the Use of Traceroute

Wouter Vries, José Jair Santanna, Anna Sperotto, Aiko Pras
International Conference on Autonomous Infrastructure, Management and Security (AIMS), 2015

Characterisation of the Kelihos.B Botnet

Max Kerckers, José Jair Santanna, Anna Sperotto
International Conference on Autonomous Infrastructure, Management and Security (AIMS), 2014

Towards Validation of the Internet Census 2012

Dirk Maan, José Jair Santanna, Anna Sperotto, Pieter-Tjerk Boer
EUNICE/IFIP International Workshop (EUNICE), 2014

Characterizing and Mitigating The DDoS-as-a-Service Phenomenon

José Jair Santanna, Anna Sperotto
International Conference on Autonomous Infrastructure, Management and Security (AIMS), 2014

Through the Internet of Things - A Management by Delegation Smart Object Aware System (MbDSAS)

Marcelo Marotta, Felipe Carbone, José Jair Santanna, Liane Tarouco
IEEE Computer Software and Applications Conference (COMPSAC), 2013

A BPM-based solution for inter-domain circuit management

José Jair Santanna, Juliano Wickboldt, Lisandro Zambenedetti Granville
IEEE Network Operations and Management Symposium (NOMS), 2012

Internet of Things in healthcare: Interoperability and security issues

Liane Tarouco, Leandro Bertholdo, Lisandro Zambenedetti Granville, Lucas Arbiza, Marcelo Marotta, José Jair Santanna
IEEE International Conference on Communications (ICC), 2012