

# Arthur Jacobs | Curriculum Vitae

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Male, Brazilian citizen, born on 10/Sep/1992.

Second year PhD student in Computer Science, in the Federal University of Rio Grande do Sul. Passionate about science and development, with strong will to learn about a multitude of subjects, and to build impacting and complex projects. Research interests include network management, Network Functions Virtualization, Intent-based Networking, Natural Language Processing for network management, self-driving networks, programmable networks and artificial intelligence.

## Education

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- **PhD in Computer Science** **August 2017 – June 2021 (Expected)**  
*Federal University of Rio Grande do Sul* *Porto Alegre, RS — Brazil*
- **Study Abroad, Brazil Scientific Mobility Program** **January 2014 – December 2014**  
*University of Maryland* *College Park, MD — US*
- **BSc in Computer Science** **March 2011 – December 2016**  
*Federal University of Rio Grande do Sul* *Porto Alegre, RS — Brazil*

## Research Experience

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- **Doctoral Researcher** **August 2017 – Current**  
*Networks Lab, Federal University of Rio Grande do Sul* *Porto Alegre, RS — Brazil*
  - Worked under the supervision of Prof. Lisandro Z. Granville, researching network management topics, such as Network Functions Virtualization and Software Defined Networking.
  - Developed an affinity metric for Virtualized Network Functions, to identify and prevent performance degradations and resource contention in virtualized Service Function Chains.
  - Constructed a refinement method for network intents expressed as natural language enabling operators to deploy network configurations using a conversational interface, such as Google Assistant.
- **Undergraduate Researcher** **August 2012 – May 2013**  
*Networks Lab, Federal University of Rio Grande do Sul* *Porto Alegre, RS — Brazil*
  - Worked under the supervision of, then, PhD student Cristiano B. Both, in a joint project with company Datacom Inc., researching on using artificial intelligence to generate alarms for network operators.
  - Developed monitoring web platform using Java, and the Vaadin web framework.
- **Undergraduate Researcher** **August 2011 – August 2012**  
*Networks Lab, Federal University of Rio Grande do Sul* *Porto Alegre, RS — Brazil*
  - Worked under the supervision of, then, PhD student Oscar M. Caicedo, researching on management on virtualized network using Mashup applications.
  - Investigated network virtualization background and related works on the research topic.

## Employment History

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- **Project Manager** **May 2018 – Current**  
*Brazilian Computer Society* *Porto Alegre, RS — Brazil*
  - Acted as Project Manager of a 6-person development team, coordinating the development of a Journal and Events Management System, with support for peer-reviewing submissions.
  - Defined the architecture and technologies of the system, having the backend developed as Restful APIs, using Django Rest Framework, and the frontend developed with Angular 6.
  - Coordinated the tasks of the team members, providing technical support and knowledge to aid the growth of team members and the developing process.
- **Software Developer** **May 2016 – September 2017**  
*ADP, LLC.* *Porto Alegre, RS — Brazil*
  - Acted as Software Architect on agile Discovery Teams, alongside a Development Leader and a Senior Product Owner, carrying out a leadership position in the development process.
  - Worked with several different Scrum teams, supporting the development of designed solutions, both in Progress 4GL and Java.
  - Worked closely with infrastructure teams, both in Brazil and Chile, to configure and manage execution environments of developed applications.
- **Software Developer Intern** **September 2015 – May 2016**  
*ADP, LLC.* *Porto Alegre, RS — Brazil*
  - Developed Java application to deploy ADP's database information for the government project eSocial, using Spring and SOAP web services.
  - Developed a web portal to monitor the deployment application's health.
- **Software Developer Intern** **May 2014 – August 2014**  
*HCI Labs, University of Maryland* *College Park, MD — US*
  - Worked under the supervision of Prof. Mark Jacobs, in the Human-Computer Interactions labs of University of Maryland.
  - Developed Android version of the iOS app, Leafsnap, to identify trees and plants based on photos of leaves.

## Research Publications

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### Peer-Reviewed Conference Papers.....

- M. V. B. da Silva, **A. S. Jacobs**, R. J. Pfitscher, L. Z. Granville, "IDEAFIX: Identifying Elephant Flows in P4-Based IXP Networks", In *2018 IEEE Global Communications Conference (GLOBECOM)*, pages 1-6, Abu Dhabi, United Arab Emirates (2018).
- **A. S. Jacobs**, R. J. Pfitscher, R. L. dos Santos, M. F. Franco, E. J. Scheid and L. Z. Granville, "Artificial Neural Network Model to Predict Affinity for Virtual Network Functions", In *2018 IFIP/IEEE Network Operations and Management Symposium (NOMS)*, pages 1-9, Taipei, Taiwan (2018).
- R. J. Pfitscher, E. J. Scheid, **A. S. Jacobs**, M. F. Franco, R. L. dos Santos, A. E. Schaeffer-Filho and L. Z. Granville, "A Model for Quantifying Performance Degradation in Virtual Network Function Service Chains", In *2018 IFIP/IEEE Network Operations and Management Symposium (NOMS)*, pages 1-9, Taipei, Taiwan (2018).
- **A. S. Jacobs**, R. L. dos Santos, M. F. Franco, E. J. Scheid, R. J. Pfitscher and L. Z. Granville, "Affinity measurement for NFV-enabled networks: A criteria-based approach", In *2017 IFIP/IEEE Symposium on Integrated Network and Service Management (IM)*, pages 125-133, Lisbon, Portugal (2017).

## Peer-reviewed Journal Articles.....

- R. J. Pfitscher, **A. S. Jacobs**, L. Zembruzki, R. L. dos Santos, E. J. Scheid, M. F. Franco, A. E. Schaeffer-Filho and L. Z. Granville, "Guiltiness: A Practical Approach for Quantifying Virtual Network Functions Performance", In *Computer Networks*, Volume 161, pages 14 - 31 (2019).
- **A. S. Jacobs**, R. J. Pfitscher, R. A. Ferreira and L. Z. Granville, "Refining Network Intents for Self-driving Networks", In *ACM SIGCOMM Computer Communication Review*, Volume 48 Issue 5, pages 55 - 63 (2018).
- O. M. C. Rendon, C. R. P. dos Santos, **A. S. Jacobs** and L. Z. Granville, "Monitoring Virtual Nodes using mashups", In *Computer Networks*, Volume 64, pages 55 - 70 (2014).

## Posters, Workshops and Others.....

- **A. S. Jacobs**, R. J. Pfitscher, R. A. Ferreira, L. Z. Granville, "Refining Network Intents for Self-driving Networks", In *ACM SIGCOMM 2018 Workshop on Self-Driving Networks (SelfDN 2018)*, pages 15-21, Budapest, Hungary (2018).
- **A. S. Jacobs**, R. L. dos Santos, M. F. Franco, E. J. Scheid, R. J. Pfitscher, L. Z. Granville, "AMNESiA: Affinity measurement platform for NFV-enabled networks", In *2017 IFIP/IEEE Symposium on Integrated Network and Service Management (IM)*, pages 899-900, Lisbon, Portugal (2017).

## Technical skills

</> **Programming Languages:** C, C++, C#, Java, PHP, JavaScript, HTML, CSS, Python, OCaml, Progress 4GL and SQL.

🔧 **Tools and Frameworks:** Git, SVN and Mercurial; Hibernate and ORMLite; Maven and Gradle; Spring; Bootstrap, JQuery and Underscore; Node.js, AngularJS, Ionic and Django.

☁ **Databases:** Firebase, MongoDB, PostgreSQL, MySQL, Oracle and Progress.

## Language skills

🇵🇹 **Portuguese:** native.

🇬🇧 **English:** fluent.

🇪🇸 **Spanish:** advanced.

🇩🇪 **German:** basic.

## References

👤 **Lisandro Zambenedetti Granville**

🎓 Assoc. Professor of Computer Science

🏛 Federal University of Rio Grande do Sul

✉ granville@inf.ufrgs.br

👤 **Ronaldo Alves Ferreira**

🎓 Assoc. Professor of Computer Science

🏛 Federal University of Mato Grosso do Sul

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