

Maximiliano Osorio

M.SC. IN COMPUTER ENGINEERING · RESEARCHER · LINUX TROUBLESHOOTER

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Education

M.Sc. in Computer Engineering

Valparaíso, Chile

UNIVERSIDAD TÉCNICA FEDERICO SANTA MARÍA

Mar. 2017 - Dec 2018

- Thesis: Towards reproducibility of computational environments for Scientific Experiments using Container-based virtualization.
- GPA: 97 (on a 0-100 scale)

Computer Science Engineering

Valparaíso, Chile

UNIVERSIDAD TÉCNICA FEDERICO SANTA MARÍA

Mar. 2010 - Jan. 2016

- Undergraduate project: Evaluation of Kubernetes (v1.0.6), an orchestration system for Docker Containers.

Projects

DockerPedia

Valparaíso, Chile

CREATOR

Feb. 2018 - Present

- DockerPedia automatically describes the software components of Docker images and their vulnerabilities using Clair.
- Dockerpedia provides a visualization tool, which uses the available data, to help Docker users search and compare between different Docker images, allowing them to find software distributions which fit their needs and monitor the state of Docker repositories over time. The project is available at <https://dockerpedia.inf.utfsm.cl>.

Work Experience

Teaching Assistant

Valparaíso, Chile

COMPUTER SCIENCE DEPARTMENT

Jul. 2016 - Present

- Proposed and teaching a new course called Software Deployment on Linux. Some of the tools used were: Docker, Kubernetes, AWS, Django, PHP, and Nginx. As a result, the students acquire practical and useful skills to deploy their applications.
- Teaching the course Operating System. In this course, the students learn the main concepts of the operating systems by practice using a Linux environment and related tools DevOps.

DevOps

Valparaíso, Chile

CHILEAN VIRTUAL OBSERVATORY (CHIVO)

Jan. 2018 - May. 2018

- The FONDEF IT15I10041 project seeks to achieve the implementation of a virtual observatory in Chile that complies with the standards and protocols defined by the International Virtual Observatory Alliance (IVOA).
- We proposed and implemented a Cloud service where astronomers can safely use Jupyter notebooks over a personal space designed for high-performance processing using Docker Containers and Kubernetes.

Systems Engineer

Santiago, Chile

LINETS

Jan. 2014 - Mar. 2016

- System Administrator for upkeep, configuration, and reliable operation of 400 servers. The usual tasks were: troubleshooting, configuration, database administration, and optimization for the servers.
- Worked with OpenStack and main components to build the first OpenStack deployment in Chile which backs Beebop, the first public cloud in Chile.
- Automatic Deployment of OpenStack using Docker Containers and Ansible playbooks.
- Implementation of a shared storage for the public cloud using Ceph. Ceph is a unified, distributed storage system designed for excellent performance, reliability, and scalability.

Systems Administrator

Valparaíso, Chile

COMPUTER SCIENCE DEPARTMENT

Aug. 2011 - Oct. 2014

- System Administrator for the internal servers, maintaining all the services to ensure its availability to students and teachers.

Skills

PROGRAMMING LANGUAGES

- Fluent in Go and Python.
- Good understanding of C, C++, Java and PHP.

CLOUD

- Excellent knowledge of OpenStack and its components; in particular, Kolla. It provides Docker containers, Ansible playbooks to deploy OpenStack on bare-metal or virtual machines.
- Develop experience on Kubernetes and Docker.
- Familiar with virtualization technologies (KVM) and Cloud providers (AWS, Digital Ocean, and Google Cloud).

DEVOPS & MASTERING TOOLS

- Experience with Docker, Ansible, Git and Jenkins to build the full chain of DevOps.
- Excellent skills to troubleshoot Linux problems using tools such as Tcpdump, Perf, strace etc.

SEMANTIC WEB

- Experience with RDF, Ontologies, SPARQL, Linked Data, and Apache Jena. These tools were used to build DockerPedia.

Presentations

DockerPedia: A knowledge graph of Docker Images.

Santiago, Chile

PRESENTER FOR STARSCONF

Nov. 2018

- DockerPedia is an RDF linked dataset that stores the information about Docker images hosted in Docker Hub. We present DockerPedia in the Starsconf; the most significant technological event in Chile and one of the most important of South America.

Reproducibility of computational environments for Scientific Experiments using Container-based virtualization

Monterey, California, USA

PRESENTER FOR SEMSCI 2018: ENABLING OPEN SEMANTIC SCIENCE

Oct. 2018

- We propose to use containers for distributing software experiments throughout software images and an annotation system that describes these software images.

Docker security: Using Containers safely

Valparaíso, Chile

PRESENTER FOR SECURITY TALKS UTFSM

Jul. 2018

- An overview of the Docker security best practices to consider in your deployment.

Publications

JOURNAL ARTICLES

JOVIAL: Notebook-based Astronomical Data Analysis in the Cloud

M. ARAYA, M. OSORIO, M. DÍAZ, C. PONCE, M. VILLANUEVA, C. VALENZUELA, M. SOLAR

CoRR abs/1812.01477 (2018). 2018

CONFERENCE ARTICLES

Docker-based implementation for an astronomical data analysis cloud service

M. DÍAZ, M. ARAYA, C. JAUREGUI, C. VALENZUELA, L. PIZARRO, M. OSORIO, M. SOLAR

XXVII Astronomical Data Analysis Software & Systems, 2018

WORKSHOP AND POSTER ARTICLES

DockerPedia: a Knowledge Graph of Docker Images

M. OSORIO, C. B. ARANDA, H. VARGAS

Proceedings of the ISWC 2018 Posters & Demonstrations, Industry and Blue Sky Ideas Tracks co-located with 17th International Semantic Web Conference (ISWC 2018), Monterey, USA, October 8th - to - 12th, 2018. 2018

Reproducibility of Computational Environments for Scientific Experiments using Container-based Virtualization

M. OSORIO, C. B. ARANDA, H. VARGAS

Proceedings of the Second Workshop on Enabling Open Semantic Science co-located with 17th International Semantic Web Conference, SemSci@ISWC 2018, Monterey, California, USA, October 8-12th, 2018. 2018

Storage Balancing in P2P Based Distributed RDF Data Stores

M. OSORIO, C. B. ARANDA

Honors & Awards

DIRECCIÓN GENERAL DE INVESTIGACIÓN Y POSTGRADO UTFSM

Chile

MASTER STUDIES SCHOLARSHIP

2017 and 2018

- Financial help, and 100% fee payment exemption due to good academic performance.

DIRECCIÓN GENERAL DE INVESTIGACIÓN Y POSTGRADO UTFSM

Chile

INITIATION IN SCIENTIFIC RESEARCH SCHOLARSHIP

2017

- Initiation in Scientific Research Scholarship (PIIC) given by "Dirección General de Investigación y Postgrado UTFSM", to students with academic research interest during Master studies.

RED DE EX ALUMNOS USM AND MINISTERIO DE EDUCACIÓN DE CHILE

Chile

UNDERGRADE STUDIES SCHOLARSHIP

2012, 2013, 2014, and 2015

- 90% fee payment exemption due to good academic performance.