Maximiliano **Osorio**

SOFTWARE ENGINEER

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Work Experience

Software Developer Consultant
Austin, TX

THE UNIVERSITY OF TEXAS AT AUSTIN
Mar 2021 - Present

- Planet Texas 2050 is an eight-year sprint to find solutions that will make our communities more resilient and better prepared. To do that, we're bringing together architects, archaeologists, city planners, public health experts, geologists, engineers, computer scientists, artists — and more.
- Refactor metadata APIs which improve the performance of the APIs and make them more maintainable using LoopBack 4, TypeScript, OpenAPI, and PostgreSQL
- Design and build a web application which allows users to run simulations on High Performance Computing (HPC) clusters without using a SSH. The application is built using FastAPI and React

Software Developer Consultant
Los Angeles, USA

INFORMATION SCIENCES INSTITUTE
Apr 2021 - Present / Jan. 2019 - May 2019

- Collabrate and develop in the Model INTegration project (MINT), MINT project combine existing models from various disciplines-including hydrology, agriculture, economics and social sciences-and run simulations to predict the consequences of actions or policies in specific geographic regions.
- Develop services (APIs, pipelines, workflows) to integrate data from different sources using Python, FastAPI, Express, and PostgreSQL
- Develop Helm charts to deploy services in Kubernetes clusters
- Maintain and improve the CI/CD pipelines using GitHub Actions
- Deploy and maintain authentication services using Keycloak
- Integrate new execution system to run simulations in HPC clusters using APIs

Research Programmer
Los Angeles, USA

INFORMATION SCIENCES INSTITUTE
Jul. 2019 - Oct. 2020

- Collabrate and develop in the Model INTegration project (MINT), MINT project combine existing models from various disciplines-including hydrology, agriculture, economics and social sciences-and run simulations to predict the consequences of actions or policies in specific geographic regions.

Part-time Teacher
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, GitHub Actions, 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.

Projects

DockerPedia *Valparaíso, Chile*
CREATOR *Feb. 2018 - March 2020*

- 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.

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.

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).
- Good understanding of top-down TCP/IP stack.

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.