Professional Career

Eric Solano, Ph.D.

My first professional job after Graduate School in 2000 was in a research institute, the former Research Triangle Institute, now renamed RTI International at the Research Triangle Park (RTP) in North Carolina. I worked at RTI as a research engineer for 15 years applying my knowledge in mathematical modeling and optimization, operations research, programming, databases, Geographic Information Systems (GIS), machine learning, statistics and probability. Most projects were contracts or grants from Federal Agencies including the Environmental Protection Agency (EPA), the National Institutes of Health (NIH), the Department of Education (DOE), the Army Corps of Engineers, etc. I collected data or used existing datasets to build mathematical models and analysis aimed at providing evidence to support or modify existing policies or to support the creation of new regulations. I built complex models using linear and mixed integer programming optimization, agent-based modeling (ABM) simulations, genetic algorithms, discrete event simulation models and systems dynamics modeling (differential equations). I used tools including R Project for Statistical Computing and Mathworks MATLAB with its Simulink modules. My toolkit included SAS, Java, ORACLE and ORACLE Spatial, GIS tools, Anylogic Simulation, Repast Suite, Protégé and Optimization Solvers like ILOG CLEX and COIN-OR. I published multiple peer reviewed papers and attended many technical conferences during my tenure at RTI. I had the opportunity to work in multi-disciplinary and inter-disciplinary teams with statisticians, health experts, epidemiologists, mechanical engineers, military experts, educators, geographers, international development and governance experts, policy makers, local government officials, etc.

In 2015 I decided to keep advancing my career in data science by becoming an independent consultant and moved to the Seattle area. I worked on multiple projects for Microsoft as an external vendor. At the time, Microsoft was developing Azure and transitioning to cloud-based services. I worked on a project for software defect prediction and management using machine learning. I used Microsoft datasets with documented bugs and defects for multiple software products. I learned a lot about the multiple and diverse data science teams and projects emerging at Microsoft at the time.

My next endeavor was with a start-up (Point Inside) with an interesting product and idea to use mobile technology to help brick and mortar businesses improve their processes and increase their sales. It was here where I mastered my knowledge in Big Data and the Apache Hadoop ecosystem initially and then with the Apache Spark framework. I analyzed tens of millions and sometimes hundreds of millions of records from Point of Sale (POS) datasets. The entire startup infrastructure was cloud-based with a combination of AWS and Google accounts. I used EC2 instances and EMR-based Spark clusters to build and run models. I built recommender systems using collaborative filtering algorithms, and I used association-rule learning to find rules on how store items were connected.

The next startup (MAANA) I worked for in the Seattle area created a computational knowledge graph (KG) technology product. I worked with this technology to generate proof-of-concepts for

customers in different industries, including oil and gas (Saudi Aramco) and logistics (Maersk). I traveled to Saudi Arabia to meet engineers and gather data to build an optimization model for the transportation of crude oil by a large worldwide fleet of oil tankers.

My current job since 2018 is with Continental AG, a global German automotive manufacturing company. As a senior data scientist in the AI team, my responsibilities span many areas in AI, data science, software engineering and data management. My data science team is a global team functioning as a horizontal organization intersecting multiple business areas: manufacturing, sales, customer relationship management, etc. I was hired to help spearhead the spread of knowledge in big data, high performance computing, data science and artificial intelligence in the company, and to help grow our team globally. I use all tools mentioned above plus python, AWS and Azure platforms, GitHub, KNIME, Matillion, Valohai, and many of the available Large Language Models (LLM).