

# Daniel Urencio Álvarez

DATA SCIENTIST

22/05/1987

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## Education

### Benemérita Universidad Autónoma de Puebla (BUAP)

Puebla, Mexico

MSC IN DEVELOPMENT ECONOMICS & INTERNATIONAL COOPERATION

Aug. 2014 - Sep. 2016

- Cum laude
- Dissertation: Internet of things applications for urban sustainability.
- Received a scholarship from Mexico's National Council on Science and Technology (CONACYT).

### Universidad de las Américas Puebla (UDLAP)

Puebla, Mexico

B.S. IN ECONOMICS

Aug. 2007 - May. 2012

## Work Experience

### National Hydrocarbons Information Center (CNIH) - National Hydrocarbons Commission (CNH)

Mexico City, Mexico

DIRECTOR OF STATISTICAL DATA VALIDATION

Jun. 2017 - ...

- Designed and developed the Hydrocarbon Information System (SIH); a full-stack web application, and Mexico's main source of publicly available oil and gas upstream data, for browsing, visualizing and downloading information on a diverse range of aggregation levels (from domestic to well production data).
- Developed and implemented data extraction, transformation and loading (ETL) processes for the automatization of reports and analysis workflows.
- Led the implementation and maintenance of SQL databases for both public and internal use.
- Developed an object-oriented framework in Python for multivariate time-dependent analysis. This tool provides a flexible API to build a supervised machine learning pipeline for well production datasets.

### National Institute of Ecology & Climate Change (INECC)

Mexico City, Mexico

HEAD OF DEPARTMENT OF GREEN GROWTH MODELS RESEARCH

Feb. 2017 - Jun. 2017

- Developed a web-based dashboard for querying data of the main Mexican cities in an interactive and graphically-oriented manner.
- Created and maintained databases of geographically referenced information in MongoDB and SQL.
- Wrote documentation in R Markdown and code in R to standardize research processes related to carbon emission inventories from mobile sources.

### United Nations Development Programme (UNDP)

Mexico City, Mexico

SUSTAINABLE CITIES DATA ANALYST

Aug. 2016 - Jan. 2017

- Designed and implemented data extraction, transformation and loading (ETL) processes to establish the main workflows to conduct analysis of urban sustainability in Mexican cities within the context of the Sixth National Communication to the United Nations Framework Convention on Climate Change.
- Interacted with individuals from diverse institutions to agree upon data sources and best practices for urban sustainability evaluation.

### Economic & Social Development Research Center - BUAP

Puebla, Mexico

RESEARCH ASSISTANT

Aug. 2014 - Jul. 2016

- Developed and implemented ETL processes for data analysis of Mexican households income using INEGI's ENIGH datasets.
- Did clustering analysis with GIS and k-means to identify economic regions within the State of Puebla using INEGI'S DENUÉ datasets.

### San Pedro Cholula City

Puebla, Mexico

ECONOMIC DEVELOPMENT & TOURISM PROJECT COORDINATOR

Jan. 2014 - Dic. 2014

- Did spatial analysis with GIS, and designed projects and fund-raising strategies for marginalized urban areas.

### GRYP Financial Advisors

Puebla, Mexico

ECONOMIC DATA ANALYST

Sep. 2012 - Oct. 2013

- Automatized trading strategies for foreign exchange and commodity derivatives using custom and conventional technical indicators.
- Did ARIMA time-series analysis for predicting relevant macroeconomic variables such as unemployment, inflation and GDP.

## Courses

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### MACHINE LEARNING

Apr. 2018	<b>Machine Learning Mastery Workshop</b> , Enthought	<i>Houston, Texas</i>
Mar. 2016	<b>Machine Learning</b> , Stanford University	<i>Coursera</i>
Feb. 2016	<b>Practical Machine Learning</b> , Johns Hopkins University	<i>Coursera</i>

### DATABASES

Apr. 2016	<b>MongoDB for DBAs</b> , MongoDB University	<i>mongodb.com</i>
Mar. 2016	<b>MongoDB for Node.js Developers</b> , MongoDB University	<i>mongodb.com</i>

### FINANCE

Apr. 2017	<b>Montecarlo Simulations for Project Finance</b> , National Institute of Ecology & Climate Change	<i>Mexico City</i>
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### GEOGRAPHICAL INFORMATION SYSTEMS

Dec. 2014	<b>Digital Map (GIS)</b> , INEGI	<i>Puebla, Mexico</i>
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## Skills

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**Data Science** Python, R, SQL, Tensorflow, Numpy, SQLAlchemy, Keras, Scikit-learn, Matplotlib, Seaborn, Jupyter Notebooks, R Markdown, PyMongo, Pandas, GeoPandas, XLwings.

**Web Development** Javascript, Node.js, CGI, Express.js, React.js, D3.js, underscore.js, HighCharts.js, jQuery, HTML5, CSS3.

**Databases & Version Control** Oracle, MongoDB, Git.

**System Management** Debian-based Linux, Unix, Shell scripting.

**Machine Learning** Neural Networks for regression and classification, Policy Gradients Reinforcement Learning.

**Math** Statistics, Probability, Calculus, Linear Algebra.

## Personal Projects & Interests

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**Internet of Things** I am currently developing an IoT application that can stream data of a building's energy consumption in real-time. This involves the design of printed circuit boards and the full-stack web-development.

**Reinforcement Learning** I have worked in developing an automatized trading agent using reinforcement learning techniques, mainly recurrent neural networks and policy gradients. The agent, still under development, can buy, hold and sell a financial asset through an API that processes long or short operations.

**P2P Networking** I am interested in exploring Go Lang for peer-to-peer applications. Some of the projects I am following are Ethereum's DevP2P framework and IPFS' libp2p library.