

# Antonio Rueda-Toicen

DATA SCIENTIST

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## Experience

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### Neuraltrain GmbH

Berlin, Germany

SENIOR DATA SCIENTIST

June 2020 - current

- Development and deployment of recommendation systems for images using content-based and collaborative filtering approaches.
- Tools used: Python, PyTorch, Pandas, SQL, Git, AWS, sklearn, Neo4J.

### HomeToGo GmbH

Berlin, Germany

DATA SCIENTIST

March 2019 - May 2020

- Development and deployment of algorithmic image understanding methods (computer vision) on an inventory of 500 million images of vacation rentals: image classification, similarity evaluation, image quality assessment and enhancement.
- Tools used: Python, PyTorch, Tensorflow, Pandas, SQL, Google BigQuery, Git, AWS, Google Cloud Platform

### Data Science Retreat

Berlin, Germany

DATA SCIENCE MENTOR

April 2020 - current

- Mentoring of experienced IT professionals and academics looking to transition into data science
- Courses taught: deep learning, SQL, computer vision.

### Berlin Computer Vision Group

Berlin, Germany

ORGANIZER

July 2019 - current

- Hosting of biweekly free and practical workshops on advanced computer vision techniques at Berlin's Linux Users Group.
- Content taught: deep learning, convolutional neural networks, image classification, object detection, Resnets, Mask R-CNN, Python, PyTorch, Tensorflow, Keras
- <https://www.meetup.com/Berlin-Computer-Vision-Group/>

### The Chain

Caracas, Venezuela

CHIEF TECHNOLOGY OFFICER | LEAD ENGINEER | FOUNDER

December 2017 - March 2019

- Management of fifteen developers working on four software projects on blockchain and artificial intelligence: Coinet, Airmed, Surgflow, Plastico
- Translation of business needs into technical requirements
- <http://thechain.tech/>

### Thinkful

New York City, USA

TECHNICAL EXPERT AND MENTOR FOR THE DATA SCIENCE BOOTCAMP (REMOTE)

May 2018 - current

- Mentor of the data science bootcamp
- Individual mentoring on statistics, databases, experimental design, A/B testing, data visualization, and machine learning
- Tools used and taught: Python, SQL, Jupyter, pandas, NumPy, matplotlib, seaborn, PyTorch, deep learning

### National Institute of Bioengineering, Central University of Venezuela

Caracas, Venezuela

INSTRUCTOR AND RESEARCHER

April 2017 - November 2018

- Instructor and researcher at the Center of Medical Visualization
- Research in biomedical computer vision focused in the segmentation and characterization of brain tumors in MRI
- Research on cellular automata, complex networks, information theory, and fractal geometry
- Supervision of biology and computer science thesis projects.
- Course taught: "Applications of fractal geometry to biomedicine"

## Algorithmic Dynamics Lab, Center for Molecular Medicine, Karolinska Institute

Stockholm, Sweden

RESEARCH PROGRAMMER (REMOTE)

January 2015 - September 2018

- Development of software to provide numerical estimations of Kolmogorov complexity and empirical study of the properties of Turing machines, cellular automata, and complex networks
- Development of the Online Algorithmic Complexity Calculator and Minimal Information Loss for Data Dimensionality Reduction  
www.complexitycalculator.com  
www.complexitycalculator.com/MILS
- Development of the Layered-BDM grayscale image and weighted network descriptor
- Tools used: R, Shiny, Python, HTML5 + CSS3, Javascript, Wolfram Language
- www.algoritmicsdynamics.net

## Udacity

Mountain View, California

MENTOR AND PROJECT REVIEWER: DATA ANALYSIS NANODEGREE (REMOTE)

Dec 2017 - May 2018

- Mentoring and project review for the Data Analyst Nanodegree at Udacity
- One on one coaching directed to students learning statistics, Python, R, SQL and Tableau

## Yttrium Technology LLC

Sunrise, Florida

LEAD SOFTWARE ENGINEER (REMOTE)

October 2013 - May 2014

- Development of DICOM PACS solution for the storage and transmission of clinical medical image data
- Tools used: C#, Java, XNAT Server, DICOM

## Languages

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**Human-to-human** English (fluent, C2 level, TOEFL IBT score 107:120), Spanish (native)

**Human-to-computer** Python, R, SQL, C, C++, Matlab, CUDA, Javascript, HTML & CSS

## Education

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### Central University of Venezuela

Caracas, Venezuela

MASTER'S DEGREE IN BIOENGINEERING

Jan. 2014 - April 2017

- Biomedical computer vision programme.
- Thesis: Classification of brain tumors in multimodal MRI with network automata
- Advisor: Miguel Martín-Landrove

### Central University of Venezuela

Caracas, Venezuela

LICENTIATE DEGREE IN COMPUTER SCIENCE

Mar. 2007 - Oct. 2013

- Specialization in Computer Graphics.
- Thesis: Segmentation of brain tumors in multichannel MRI with GPU-parallelized cellular automata
- Advisors: Miguel Martín-Landrove and Rhadamés Carmona

## Selected Publications

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### **Tumor Growth in the Brain: Complexity and Fractality**

*Springer Series in Computational  
Neuroscience*

BOOK CHAPTER IN "THE FRACTAL GEOMETRY OF THE BRAIN": MIGUEL MARTÍN-LANDROVE, ANTONIO BRÚ, ANTONIO RUEDA-TOICEN, & FRANCISCO TORRES-HOYOS  
available online

2016

### **Evolution Rules of Deterministic Cellular Automata for Multichannel Segmentation of Brain Tumors in MRI**

*Proceedings of CIMENICS XII*

CONFERENCE ARTICLE: ANTONIO RUEDA-TOICEN, RHADAMÉS CARMONA, MIGUEL MARTÍN-LANDROVE, & WUILIAN TORRES  
available online, with code repository on GitHub

2014

### **Search of Complex Binary Cellular Automata with Behavioral Metrics**

*Complex Systems, Vol 24, No. 1*

JOURNAL ARTICLE: JUAN C. LÓPEZ-GONZÁLEZ & ANTONIO RUEDA-TOICEN  
available online, app available at: [cellular-automata.com/discoverer](http://cellular-automata.com/discoverer)

2015