Antonio **Rueda-Toicen**

Data Scientist · Software Engineer

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Experience

HomeToGo GmbH

Berlin, Germany

Data Scientist — *March 2019 - current*

- 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, Google BigQuery, Google Cloud Platform

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, PyTorch, Tensorflow, Keras
- https://www.meetup.com/Berlin-Computer-Vision-Group/

The Chain

Caracas, Venezuela

Chief Technology Officer | Lead Engineer | Founder — *December 2017 - current*

- 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 — *May 2018 - current*

- Mentor of the data science bootcamp
- Individual mentoring on statistics, databases, experimental design, A/B testing, data visualization, and machine learning
- Mock interviewing of candidates and capstone project grading
- 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 — *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.algorithmicdynamics.net

Udacity *Mountain View, California*

Mentor and Project Reviewer: Data Analysis Nanodegree *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 *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

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

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

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 *2016*

available online

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 *2014*

available online, with code repository on GitHub

Search of Complex Binary Cellular Automata with Behavioral Metrics *Complex Systems, Vol 24, No. 1*

Journal article: Juan C. López-González & Antonio Rueda-Toicen *2015*

available online, app available at: cellular-automata.com/discoverer