Antonio Rueda Toicen

antonio.rueda.toicen@algorithmicnaturelab.org

Current positions

Researcher
Algorithmic Nature Group, LABORES for the Natural and Digital Sciences
since January 2015

Researcher
Physics and Mathematics in Biomedicine Consortium &
Instituto Nacional de Bioingeniería
since October 2012

Teaching Assistant, Information Dynamics of Complex Networks
ItBit Programme on Physical and Computational Sciences &
Santa Fe Institute's Complexity Explorer
since July 2014

Operational and Production Manager
ItBit Programme on Physical and Computational Sciences
since January 2015

Education

2016 Master's degree in Bioengineering, Universidad Central de Venezuela (expected)
2013 Bachelor of Science in Computer Science, Universidad Central de Venezuela

Areas of specialization

Computer Vision • Machine Learning • Complex Adaptive Systems

IT professional certifications

2009 Sun Certified Java Programmer, Sun Microsystems
2002 Microsoft Certified Systems Engineer, Microsoft
2002 Microsoft Certified Systems Administrator, Microsoft

Publications

Book chapters

2016 *"Dynamics of Tumor Growth: Complexity and Fractality"*
Miguel Martín-Landrove, Antonio Brú, Antonio Rueda-Toicen, and Francisco Torres
in The Fractal Geometry of the Brain, editor: Antonio Di Ieva
Springer Series in Computational Neuroscience

Journal articles

2015 *"Search of Complex Binary Cellular Automata Using Behavioral Metrics"*
Juan López-González and Antonio Rueda-Toicen
Complex Systems, 24(1)
available online

Conference articles

2014 *"Evolution Rules of Deterministic Cellular Automata for Multichannel Segmentation of Brain Tumors in MRI"*
Proceedings of CIMENICS 2014, XII Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas
Antonio Rueda-Toicen, Rhadamés Carmona, Miguel Martín-Landrove, and Wuilian Torres
available online

2014 *"Unsupervised Segmentation of Multispectral Images with Cellular Automata"*
Proceedings of CIMENICS 2014, XII Congreso Internacional de Métodos Numéricos en Ingeniería y Ciencias Aplicadas
Antonio Rueda-Toicen and Wuilian Torres
available online

2014 *"Autómatas Celulares para la Segmentación y Clasificación de Imágenes Multiespectrales"*
Proceedings of V Jornadas Nacionales de Geomática y IX Jornadas de Educación en Percepción Remota en el Ámbito de Mercosur
Antonio Rueda-Toicen and Wuilian Torres
available online

Other education

2014 Wolfram Science Summer School 2014
Project: Estimation of the fractal dimension of brain tumors.

Work experience

2013-2014 *Lead software developer*
Yttrium Technology LLC

2009-2013 *Java trainer and consultant*
Centege CA

2002-2013 *Translator & technical writer*
Translass AC

2010 *Web developer*
Softrain CA

Languages

Human-to-human

- Fluent *(native level)* English and Spanish
- Professional proficiency of Portuguese (*eu comprendo bem*)
- Basic grasp of German

Human-to-computer

- Java
- C
- C++
- C#
- CUDA
- Python
- Matlab
- Mathematica
- Javascript
- HTML + CSS

I'm also proficient in document typesetting with LaTeX.

Projects

Cellular Automata Discoverer
Java application that uses genetic search to find complex cellular automata with behavioral metrics similar to Conway's Game of Life in a non-totalistic Moore neighborhood.
Windows version bundled with Golly
Code available @ Bitbucket
Journal article describing the method @ Complex Systems

Online Algorithmic Complexity Calculator
The Online Algorithmic Complexity Calculator is an ongoing long term project of the Algorithmic Nature Group implementing semi-computable measures of algorithmic complexity.
complexitycalculator.com

Segmentation of Multichannel MRI Brain Tumors with GPU-accelerated Cellular Automata
Fast image segmentation method for radiosurgical planning.
Code available @ Bitbucket

References

Héctor Zenil
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Oxford University & Karolinska Institutet
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Miguel Martín-Landrove
Director of Physics and Mathematics in Biomedicine Consortium
Universidad Central de Venezuela
mmartin@fisica.ciens.ucv.ve

Bernat Espigulé-Pons
Consultant
Wolfram Research
bernate@wolfram.com

Miscellaneous

ResearchGate
LinkedIn
BitBucket

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