ARLES ERNESTO RODRÍGUEZ PORTELA

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EDUCATION

Universidad Nacional de Colombia 2012- 2019
Ph.D. in Computer Systems Engineering *GPA 4.6/5.0*

Universidad Nacional de Colombia 2009 – 2012
Magister in Computer Systems Engineering GPA *4.6/50*

Universidad Distrital Francisco José de Caldas 2000-2007
Bachelor's in computer systems Engineering GPA *4.4/5.0*

WORK EXPERIENCE

Fundación Universitaria Konrad Lorenz Bogotá, Colombia
Associate Professor February 2016 - Present

- Research in data management task, failure detection, resilience and self-healing of Simulated Distributed Environments using Artificial Life Approaches.
- Coach of competitive programming teams of the University - classified to ICPC regionals during three consecutive years (2017, 2018, 2019).
- Courses: Analysis and Design of Systems, Design of Multimedia Applications, Data Structures and Computer Programming.

Universidad Nacional de Colombia Bogotá, Colombia
Teaching Assistant (Scholarship for outstanding postgraduate students) August 2009-January 2016

- Computer Programming Course and Software Engineering II.
- Researcher at Research Group on Artificial Life Alife. Developer Leader and Designer of an intelligent e-learning platform, that supports the learning process by offering students and professors custom navigation between contents and materials in an interactive way (book chapters, exercises, videos). Platform also offers an online evaluation process based on Computer Adaptive Testing (CAT) that choose questions to ask a student and assigns the student grade according to the student's ability.

Telecom ParisTech Paris, France
Visitor Researcher January 2015 - August 2015

- Acquiring skills to model autonomic and self-organized systems;
- Simulation Design of Distributed Components using Multi-Agent Systems to Model Data Management Tasks and Local Rules to Increase Robustness and Obtain Self-healing in Distributed Environments.

Dexon Software Bogotá, Colombia
Senior Developer August 2006-August 2009

- Development Leader and Designer of Dexon Agent for Linux, OS X, Solaris, Android, AIX and Verix Operating Systems. Dexon Agent performs administration, audit and monitoring of the entire IT platform, processes and practices based on ITIL. Dexon Agent obtains hardware and software information automatically and performs remote control over assets in any geographic region, controls patches and software updates and allows centralized software distribution.

Research

Self-healing Model for Distributed Environments based on Artificial life Techniques 2012-2018
Doctoral dissertation - http://bdigital.unal.edu.co/69892/

- Failures are defined in the nodes of a network.
- Use mobile agents to synchronize and repair a complex network structure.
- Proposed algorithm is able to repair a network structure with a failure speed lesser than the speed of the healing process.

Improving data collection in complex networks with failure prone agents via local marking 2019
Article published in the Journal of intelligent and Fuzzy Systems, Presented in LKE 2018

- An improvement to selected movement algorithms to collect data in complex networks in a faster way with failure prone agents.
- Collects data fast in networks with a high standard deviation in the Betweenness Centrality.

Towards a self-healing multi-agent Platform for Distributed data Management
A simulator to model data collection tasks using multi-agent systems. Presented in PAAMS 2017 2017

- Model of distributed data- collection tasks in bi-dimensional environments and in complex Networks implemented in Java. Information available at: https://link.springer.com/chapter/10.1007/978-3-319-59930-4_36 video: https://www.youtube.com/watch?v=2uKRep5wHCA

Replication-Based Self-healing of Mobile Agents Exploring Complex Networks 2017

A model to self-recover mobile agents performing data collection tasks in complex networks Presented in PAAMS 2017

- Propose an algorithm based on ant colony systems and local rules.
- Proposed algorithm avoids over-replication and under replication by itself.
- More information available at: https://link.springer.com/chapter/10.1007/978-3-319-59930-4_18

Exploring Complex Networks with Failure-Prone Agents 2016

A model to evaluate robustness in a data collection tasks performed by mobile agents exploring complex networks Presented in MICAI 2016

- The model determines a failure probability defined in mobile agents.
- Use different movement approaches to explore selected complex networks.
- As an important result, speed of the movement algorithm determines data collection and it depends also of the topology of the network.
- More information available at: https://link.springer.com/chapter/10.1007/978-3-319-62428-0_7

AWARDS

Honorable Mention in the South America-North Finals 2017/2018/2019 as coach.
Meritorious Mention in my Master Thesis – Universidad Nacional de Colombia.
Meritorious Mention in Bachelor Thesis – Universidad Distrital Francisco José de Caldas.
Scholarship for outstanding postgraduate students 2009-2011 Universidad Nacional de Colombia.
Scholarship for outstanding postgraduate students 2012-2016 Universidad Nacional de Colombia.