RESUME

Didier Augusto Vega-Oliveros

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PROFILE

He is an Artificial Intelligence Postdoctoral Research fellow at Recod.ai, Institute of Computing, University of Campinas, Brazil. Self-motivated and proactive engineer oriented to results; he leads and dynamically participates in aspects of the architecture, design, development, implementation, quality, and support during the lifecycle of R&D products, always taking into consideration the big picture in all the phases. He has participated in projects applied to industry and society, researching and leading teams in Artificial Intelligence and Machine learning applied to Big Data systems, proposing scalable solutions with distributed, parallel, and cloud computing systems on relational and Non-SQL databases. His research experience also includes the study of Ubiquitous Computing, User-Computer Interaction and multimodal interfaces for the development of adaptative and responsiveness systems. Currently, his fields of interest encompass Machine Learning based on Complex Networks in the modeling of Climate systems and social networks analysis. Professional strengths include effective communication skills, high motivation by challenges with innovative ability, adaptability to new technologies, and initiative to research and study new approaches to identify practical solutions.

EDUCATION / TITLES

- 2013 – 2017 **PhD in Computer Science**
  Title: *Information and Rumor propagation in Social Networks*
  Supervisors: Francisco Aparecido Rodrigues and Luciano da Fontoura Costa
  Scholarship from National Council for Scientific and Technological Development (CNPq)
  Univeristy of Sao Paulo - USP, Brazil
- 2009 – 2011 **MSc in Computer Science**
  Title: *Media-Oriented Operators for Authoring Multimedia Documents: Interactors*
  Supervisor: Maria da Graça Campos Pimentel
  Scholarship from National Council for Scientific and Technological Development (CNPq)
  Univeristy of Sao Paulo - USP, Brazil
- 2003 – 2008 **Bachelor's degree in Computer Engineering**
  National University of Colombia, Bogotá, D.C., Colombia

COMPLEMENTARY FORMATION / RESEARCH EXPERIENCE

- 2020 – 2021 **Artificial Intelligence Postdoctoral Fellow**
  Project: *Learning visual clues of the passage of time*
  Advisors: Anderson de Rezende Rocha
  Supported by São Paulo Research Foundation (FAPESP)
  Recod.ai, Institute of Computing, University of Campinas, Brazil.
- 2019 – 2021 **Postdoctoral research collaborator**
  Project: *Spatiotemporal data analytics based on complex networks*
  Advisors: Santo Fortunato, Filippo Menczer, and Alessandro Flammini
  Supported by São Paulo Research Foundation (FAPESP)
  Indiana University, Center for Complex Networks and Systems Research – CNetS, USA

- 2017 – 2020 **Postdoctoral research**
  Project: *Dynamical processes in complex network based on machine learning*
  Advisors: Zhao Liang and Elbert E. N. Macau
  Supported by São Paulo Research Foundation (FAPESP)
  Univeristy of Sao Paulo – USP and National Institute of Space Research – INPE, Brazil
- 2017, 2019 **Research Visitor** at Humboldt University of Berlin, Germany
  Invited by: Jürgens Kurths
  Supported by DFG-IGRK 1740/2 and FAPESP 2015/50122-0 joint project
- 2016 **Research Visitor** at National University of La Plata, Argentina
  Advisor: Federico Vázquez
  Supported by Santander Scholarship award
- 2014 **Visiting Scholar** at Center for Complex Network Research (CCNR)
  Advisor: Albert-László Barabási
  Northeastern University, United States of America
- 2008 **Undergraduate Exchange Student** at Institute of Mathematics and Computer Sciences (ICMC-USP)
  Advisor: Maria da Graça Campos Pimentel
  Univeristy of Sao Paulo - USP, Brazil

PROFESSIONAL EXPERIENCE

- 04/2017 – 04/2018 **Sureale**, Brazil – R&D in cloud services and business model

  Sureale project (sureale.com): I was a researcher and technical leader in Sureale project, the startup that is an evolution in marketing allowing ultra-realistic and interactive experiences in virtual architecture environments.

- 02/2017 – 06/2017 **University Herminio Ometto, UNIARARAS**, Brazil – Faculty of Engineering **Assistant Professor** lecturing the courses Computer Programming I (2 courses) and III (4 courses).

- 05/2011 - 01/2013 **Invit Information Services,** Brazil – R&D team of Intelligence Agents and Semantic Framework

  Agentto project (Agentto). Design and development of a Semantic Framework and intelligent agents for the processing of contextual data to conduct queries and inferences about high-level events of context and situation awareness, with modules projected to high scalability and performance in both the cloud and clients.

  04/2012 **Software Architect:** Promoted to technical leader who coordinates the Semantic Framework team

  Main activities:

  - ✓ Coordination and planning of team activities
  - ✓ Management the deployment of cloud applications
  - ✓ Architect and developer in the clients of a security alarm system activated by slaps (feature running in production)
  - ✓ Developer and designer of PTT (push-to-talk) infrastructure, client libraries and interface (feature running in production)
  - ✓ Architect and developer of a semantic framework based on ontologies and reasoning
  - ✓ Leader of research and adoption of CEP (Complex Event Processing), Semantic Web, Ubiquitous and Pervasive Computing, Context-Awareness and Situation-Awareness.
  - ✓ Management and planning of functional and non-functional tests

  05/2011 **Software Engineer**: Developer and designer in an interdisciplinary team for creating new product feature

  Main activities:

  - ✓ Proposal of agents architecture based on CEP (Complex Event Processing)
  - ✓ Developer in both server and client (Android and Windows Phone 7) of the protocol to communicate with the cloud (feature running in production)
  - ✓ Developer and designer of a feature that infers user's frequent places (running in production)
  - ✓ Design and development of abstraction layer for data persistence in various types of Azure storage
  - ✓ Design and development of product features in Windows Phone and Android
  - ✓ Deployment of applications in Cloud Computing
  - ✓ Applied research, in combination with the Federal University of Uberlândia, in the areas of AI, Context/Situation-Awareness, Multimodal and Natural Interfaces and Natural Language Processing
  - ✓ Implementation of testing like unit and integration tests and performance, load and stress test

- ✓ Mitigation of technical risks for the adoption and integration of new cutting-edge technologies
- ✓ Participation in the implementation of SCRUM

- 03/2009 - 10/2009 **Intermidia lab at ICMC/USP** – TIDIA-Ae project (www.tidia-ae.usp.br)
  Software Engineer: Development of a player in NCLua and SMIL that enables the review and synchronization of captured data (chat session, video conferencing and electronic whiteboard) for the DiGaE tool (Distributed Gathering Environment) of the TIDIA-Sakai Project of Univesity of Sao Paulo.

KNOWLEDGES AND TECHNICAL SKILLS

- ✓ Cloud Computing
- ✓ Back-end software architectures
- ✓ OpenMP/MPI
- ✓ Ontologies
- ✓ XML, JSON, REST, SOAP
- ✓ ClickOnce
- ✓ SCRUM
- ✓ DevOps
- ✓ Agile Methodologies
- ✓ TDD, Usability test
- ✓ Complex Networks
- ✓ Machine learning
- ✓ Ubiquitous computing
- ✓ Human Computer Interaction
- ✓ Complex data analyses

AWARDS

- 2016 **Student Travel Award from SoFiA** – Latin American School on Data Analysis and Mathematical Modeling of Social Science, financed by CELFI – Latin American Center for Interdisciplinary Training.
- 2016 **Santander Scholarship** for Academic Exchange Visit
- 2015 **Student Travel Award from IJCAI** – International Joint Conferences on Artificial Intelligence.
- 2008 **Undergraduate Exchange Student Scholarship –** National University of Colombia.

RESEARCH EXPERIENCE

With more than 20 academic works published **Google Scholar** *citations* 274, *h-index 10*, *i10-index* 10

1. Filipi N Silva, Didier A. Vega-Oliveros, Xiaoran Yan, Alessandro Flammini, Filippo Menczer, Filippo Radicchi, Ben Kravitz, Santo Fortunato. Detecting climate teleconnections with Granger causality. Accepted for publication in Geophysical Research Letters, 2021. https://arxiv.org/abs/2012.03848v1
2. Vega-Oliveros, D. A.; Zhao, Liang; Rocha, Anderson; Berton, Lilian. Link Prediction Based on Stochastic Information Diffusion. IEEE Transactions on Neural Networks and Learning Systems, 2021. DOI: 10.1109/tnnls.2021.3053263
3. Anghinoni, Leandro ; Vega-Oliveros, Didier A. ; Silva, Thiago Christiano ; Zhao, Liang. Time series pattern identification by hierarchical community detection. European Physical Journal-Special Topics, v. 1, p. 1-8, 2021. DOI: 10.1140/epjs/s11734-021-00163-4
4. Ferreira, Leonardo N. ; Vega-Oliveros, Didier A. ; Cotacallapa, Moshé ; Cardoso, Manoel F. ; Quiles, Marcos G. ; Zhao, Liang ; Macau, Elbert E. N.. Spatiotemporal data analysis with chronological networks. Nature Communications, v. 11, p. 4036, 2020. DOI: 10.1038/s41467-020-17634-2
5. De Castro Santos, Matheus A. ; Vega-Oliveros, Didier A. ; Zhao, Liang ; Berton, Lilian . Classifying El Niño-Southern Oscillation Combining Network Science and Machine Learning. IEEE Access, v. 8, p. 55711-55723, 2020. DOI: 10.1109/ACCESS.2020.2982035
6. Gao, Xubo ; Zheng, Qiusheng ; Vega-Oliveros, Didier A. ; Anghinoni, Leandro ; Zhao, Liang. Temporal Network Pattern Identification by Community Modelling. Scientific Reports, v. 10, p. 1-12, 2020. DOI: 10.1038/s41598-019-57123-1
7. Vega-Oliveros, D. A.; da Fontoura Costa, L.; Rodrigues, F. A. Influence maximization by rumor spreading on correlated networks through community identification. Communications in Nonlinear Science and Numerical Simulation, 2020. DOI: 10.1016/j.cnsns.2019.105094
8. Ferreira, Leonardo N.; Vega-Oliveros, Didier A. ; Zhao, Liang ; Cardoso, Manoel F. ; Macau, Elbert E.N. . Global fire

season severity analysis and forecasting. Computers & Geosciences, 2019. DOI: 10.1016/j.cageo.2019.104339

9. Santos, Leonardo Bacelar Lima ; Londe, Luciana R. ; de Carvalho, Tiago José ; S. Menasché, Daniel ; Vega-Oliveros, Didier A. . About Interfaces Between Machine Learning, Complex Networks, Survivability Analysis, and Disaster Risk Reduction. In: Leonardo Bacelar Lima Santos; Rogério Galante Negri; Tiago José de Carvalho. (Org.). 1 ed. Switzerland AG: Springer International Publishing, 2019, v. 1, p. 185-215. DOI: 10.1007/978-3-030-21205-6_10
10. Vega-Oliveros, Didier A.; Gomes, Pedro Spoljaric ; E. Milios, Evangelos ; Berton, Lilian . A multi-centrality index for graph-based keyword extraction. Information Processing & Management, v. 56, p. 102063, 2019. DOI: 10.1016/j.ipm.2019.102063

REFERENCES

Elbert E. N. Macau: elbert.macau@unifesp.br

Anderson Rocha: anderson.rocha@unicamp.br

LANGUAGES

- ✓ English
- ✓ Portuguese
- ✓ Spanish