Fabio Dias

Postdoctoral fellow - University of Toronto

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Overview

Areas of Expertise: Data science, machine learning, data visualization, image processing, and signal processing. Cross-disciplinary requirements engineering, project management, and mentoring.

Professionally used technologies: C/C++ (2009-2011), SVN (2009-2014), matlab (2010-2013), PHP (2014), PostgreSQL / PostGIS (2014-), javascript (2014-), git (2015-), python / numpy / scipy / scikit-learn / pandas (2015-), d3 (2015-2016), tensorflow / keras (2016, 2018), react (2017-), mapbox gl (2017-).

Permanent Resident of Canada since May 2017

English Proficiency: IELTS 8.5/9 (2016). Reasonable knowledge of French, native Portuguese.

Education

Ph.D. in Computer Science - Université Paris-Est — 2009-2012
A study of some morphological operators in simplicial complex spaces. — France
Signal processing, data representation, network data.

M.Sc. in Computer Science - University of Campinas — 2007-2009
Generalized visual rhythm and tracking in sport images. — Brazil
Computer vision, optimization, graphs.

B.E. in Computer Engineering - University of Campinas — 2002-2006
Information fusion and object tracking in video images. — Brazil
Information fusion, fuzzy and probabilistic methods.

Professional experience

University of Toronto — 2017-Present
Postdoctoral Fellow — Canada
Urban Genome Project.

Achievements:

- Cross-disciplinary requirements engineering (economics, sociology, planning).
- Planning and development of urban data science applications.
- Introduction of a new processing paradigm for dynamic urban data.
- Visualization of data-driven insights and analysis of stakeholders' feedback.

Projects:

- Geographical socio-economic data exploration (live, code, video),
- Information fusion and data-aware methods for resilient urban planning (FluxLand),
- Identification of economic mega-regions (live, code, blog),
- Warburg's Mnemosyne meets deep learning (live, code).

Technologies: Python (cherrypy, pandas, keras) and javascript (react, mapbox).

NYU Tandon School of Engineering 2016-2017
Postdoctoral Fellow USA
Visual analytics for network urban data.

Achievements:

- Mentoring and project management.
- Development of new network data processing algorithms.
- Planning and development of urban data science applications.
- Visual insight and interactive exploration in network-based urban data.

Projects:

- Hypergraphs for data clustering (paper, code),
- Tensor decomposition for data visualization (paper)
- Network simplification via matrix factorization (paper)

Technologies: Python (networkx, sklearn) and javascript (jQuery, d3).

University of São Paulo 2015-2016
Postdoctoral Fellow Brazil
Visual analytics for network data.

Achievements:

- Mentoring and project management.
- Development of new methods for network data analysis and visualization.
- Introduction of a new framework for network-based urban data modelling.

Projects:

- Network data analysis using Wavelets and Fourier (live, paper)
- Analysis of dynamic networks (social networks, contact networks) (live, code).

Technologies: Python (networkx, scipy, numpy).

Foundation for Science, Technology and Space Applications 2014-2014
Systems analyst Brazil
TerraClass WebGIS.

Achievements:

- Requirements engineering, planning, and interface design.
- Initial prototype development and testing.
- Contributions to code optimizations in an Open Source GIS (grass).

Projects:

- TerraClass WebGIS for the interactive visualization of changes in the Amazon Forest.

Technologies: PHP, javascript, jQuery, d3, PostgreSQL, PostGIS, Linux server.

University of Campinas 2013-2014
Postdoctoral Fellow Brazil
Human motion analysis for underwater sports.

Achievements:

- Planning and development of new methods for computer biomechanics.
- Additional contributions: electronic camera shutter controls, servers, connections.

Projects

- Development of motion reconstruction with non-specialized cameras (code)
- Camera calibration methods for underwater analysis (code).

Technologies: Matlab, basic electronics, windows server.

ESIEE PARIS

ESIEE Paris 2009-2011
Research Assistant France
DematFactory - Signal processing in digital structures.

Achievements:

- Introduction of new network-based image representations.
- Development of new image processing framework using discrete structures.

Projects:

- Development of new image processing operators for noise removal using signal processing in graphs and simplicial complexes (code).

Technologies: Matlab, C/C++.