# Fabio Dias

Postdoctoral fellow - University of Toronto

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## Education

**Ph.D. in Computer Science** 2009-2012
Université Paris-Est, Champs-sur-Marne, France.
*A study of some morphological operators in simplicial complex spaces.*
**Advisors:** Prof. Dr. Laurent Najman and Prof. Dr. Jean Cousty

**M.Sc. in Computer Science** 2007-2009
Institute of Computing - Unicamp, Campinas, Brazil.
*Generalized visual rhythm and tracking in sport images.*
**Advisor:** Prof. Dr. Neucimar J. Leite

**B.E. in Computer Engineering** 2002-2006
Unicamp, Campinas, Brazil.
*Information fusion and object tracking in video images.*
**Advisor:** Prof. Dr. Neucimar J. Leite

## Research funding

- Research Internship Abroad: 12 months - FAPESP 2016-2017
- Postdoctoral fellowship: 22 months - FAPESP 2015-2016
- Postdoctoral fellowship: 14 months - FAPESP 2013-2014
- Master's fellowship: 24 months - FAPESP 2007-2009
- Undergrad research internship: 12 months - FAPESP 2004-2005

## Research experience

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

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

Postdoctoral Fellow 2015-2016
University of Sao Paulo, Sao Carlos, Brazil
*Visual analytics for network data.*

Postdoctoral Fellow 2013-2014
College of Physical Education - Unicamp, Campinas, Brazil
*Human motion analysis for underwater sports.*

Research Assistant 2009-2011
ESIEE Paris - Noisy-le-Grand, France
*DematFactory - Signal processing in digital structures.*

# Publications

1. *Visualizing demographic evolution using geographically inconsistent census data*
   Dias, F; Silver, D.
   SocArXiv 2018/4/1 - (under elaboration)

2. *Wavelet-Based Visual Data Exploration* Book chapter
   Dal Col, A. ; Valdivia, P. ; Petronetto, F. ; Dias, F. ; Silva, C.T.; Nonato, L.G.
   In: Lj. Stankovic, E. Sejdic, Eds., Vertex-frequency analysis of graphs, Springer, 2019.

3. *A Hierarchical Network Simplification Via Non-Negative Matrix Factorization* Conference
   Dias, M.; Mansour, M.; Dias, F.; Petronetto, F.; Silva, C.T; Nonato, L. G.
   Sibgrapi - Conference on Graphics, Patterns and Images, 2017.
   **Honorable mention for Computer Graphics and Visualization**

4. *Wavelet-based Visual Analysis of Dynamic Networks* Journal
   Dal Col, A.; Valdivia, P.; Petronetto, F.; Dias, F.; Silva, C.T.; Nonato, L. G.
   IEEE Transactions on Visualization and Computer Graphics, 2017

5. *Wavelet-based Visual Analysis for Data Exploration* Journal
   Dal Col, A.; Valdivia, P.; Petronetto, F.; Dias, F.; Silva, C.T.; Nonato, L. G.
   IEEE Computing in Science & Engineering, 2017.

6. *Watersheds on hypergraphs for data clustering* Conference
   Dias, F.; Mansour, Moussa R.; Valdivia, P., Cousty, J; Najman, L.
   International Symposium on Mathematical Morphology, 2017.

7. *Topological Analysis of Inertial Dynamics* Conference
   Sagrista, A.; Jordan, S.; Just, A; Dias, F.; Nonato, L.G.; Sadlo, F.
   IEEE Transactions on Visualization and Computer Graphics (SciVis), 2016.

8. *Improved accuracy in 3D analysis using DLT after lens distortion correction* Journal
   Rossi, M. ; Silvatti, A. ; Dias, F.; Barros, R.M.L.
   Computer methods in biomechanics and biomedical engineering, 2015.

9. *Wavelet-based Visualization of Time-Varying Data on Graphs* Conference
   Valdivia, P.; Dias, F.; Petronetto, F.; Silva, C.T.; Nonato, L.G.
   IEEE Conference on Visual Analytics Science and Technology, 2015.

10. *Some Operators from Mathematical Morphology for the Visual Analysis of Georeferenced Data* Conference
    Dias, F.; Nonato, L.G.
    WVIS, Sibgrapi - Conference on Graphics, Patterns and Images, 2015.
    **Best paper award.**

11. *Using Digital Image Processing to Estimate the Depth of Urban Streams* Conference
Ortigossa, E.; Dias, F.; Ueyama, J.; Nonato, L.G.
Workshop of Undergraduate Works, Sibgrapi, 2015.
**Best paper award.**

12. *Dimensional operators for mathematical morphology on simplicial complexes* Journal
Dias, F; Cousty, J; Najman, L.
Pattern Recognition Letters, 2014.

13. *Quantitative underwater 3D motion analysis using submerged video cameras: accuracy analysis and trajectory reconstruction* Journal
Silvatti, A.; Cerveri, P. ; Telles, T. ; Dias, F.; Baroni, G. ; Barros, R.
Computer Methods in Biomechanics and Biomedical Engineering, 2013.

14. *Morphological filtering on graphs* Journal
Cousty, J.; Najman, L.; Dias, F.; Serra, J.
Computer Vision and Image Understanding, 2012.

15. *Camera calibration for underwater applications: effects of object position on the 3d accuracy* Conference
Silvatti, A. ; Dias, F. ; Cerveri, P.; Barros, R.M.L.
International Society of Biomechanics in Sport Conference, 2012.

16. *Comparison of different camera calibration approaches for underwater applications* Conference
Silvatti, A. ; Dias, F. ; Cerveri, P.; Barros, R.M.L.
Journal of Biomechanics, 2012.

17. *Some morphological operators on simplicial complexes* Conference
Dias, F. ; Cousty, J. ; Najman, L.
Discrete Geometry for Computer Imagery, 2011.
**Short list (3) for best student paper award.**

18. *Underwater comparison of wand and 2d plane nonlinear camera calibration methods* Conference
Silvatti, A. ; Telles, T ; Dias, F. ; Cerveri, P.; Barros, R.M.L.
International Society of Biomechanics in Sport Conference, 2011.

19. *Underwater non-linear camera calibration: an accuracy analysis* Conference
Silvatti, A. ; Telles, T ; Rossi, M. ; Dias, F. ; Leite, N.J.; Barros, R.M.L.
International Society of Biomechanics in Sport Conference, 2010.

20. *Non-linear camera calibration for 3D reconstruction using straight line plane object* Conference
Silvatti, A. ; Rossi, M. ; Dias, F. ; Leite, N.J.; Barros, R.M.L.
International Society of Biomechanics in Sport Conference, 2009.

# Teaching experience

- Lecturer: USP
Introduction to Statistics - undergrad (60h) 2016
Mathematical topics in data analysis I and II - graduate (48h) 2015

- Invited lecturer: Unicamp
  Computer methods for biomechanics - graduate (10h) 2012
- Teaching Assistant: ESIEE Paris
  Introduction to compilers- undergrad (20h, lab). 2010
- Teaching Assistant: Unicamp
  File Structures - undergrad (30h, lab). 2007, 2008
  Laboratory of computer hardware - undergrad (30h, lab). 2005

# Service

- **Program Committee**: CLEI - SLCGRVPI 2015-; SIBGRAPI 2018-.
- **Reviewer - Journals**: IEEE CG&A 2018-; IET IPR, 2015-.
- **Reviewer - Conferences**: IEEE VIS 2015-; SIBGRAPI 2009, 2013, 2016-.
- **Reviewer - Grants and awards**: FAPESP 2013-; FACEPE 2015- .

# Additional information

Permanent Resident of Canada since Sep. 2017

English proficiency:

- IELTS 8.5/9 (2016)
- TOEIC 990/990 (2011)

Links:

- Google Scholar
- ORCID
- LinkedIn