

CURRENT POSITION

Postdoctoral fellow, October 2013 - current Shah Lab for Computational Cancer Biology
BC Cancer Agency Research Centre
University of British Columbia, Canada
Supervisor: Sohrab Shah

EDUCATION

PhD in Statistics, September 2013 **University of British Columbia, Canada**
Thesis: Switching Nonparametric Regression Models
Supervisor: Professor Nancy Heckman

Master's Degree in Statistics, April 2008 **University of Campinas, Brazil**
Thesis: Hypothesis tests for functional data based on distances:
a study using splines
Supervisor: Professor Ronaldo Dias

Bachelor's Degree in Statistics, July 2005 **University of Campinas, Brazil**

RESEARCH INTERESTS

Method development and analysis of cancer genomic data, single-cell sequencing, functional data analysis, latent variable modeling, nonparametric regression, density estimation and machine learning.

RESEARCH PUBLICATIONS

Farahani, H.*, **de Souza, C. P. E.***, Billings, R.*, Yap, D., Shumansky, K., Wan, A., Lai, D., Mes-Masson, A-M., Aparicio, S., Shah, S. P., Engineered in-vitro cell line mixtures and robust evaluation of computational methods for clonal decomposition and longitudinal dynamics in cancer, *TO APPEAR at Scientific Reports, a Nature research Journal* (preprint available upon request). *Authors contributed equally to this work.

de Souza, C. P. E., Heckman, N. E. and Xu, F., (2017) Switching nonparametric regression models for multi-curve data, *The Canadian Journal of Statistics* (<http://onlinelibrary.wiley.com/doi/10.1002/cjs.11331/full>).

McPherson, A., Roth, A., Ha, G., Chauve, C., Steif, A., **de Souza, C. P. E.**, Eirew, P., Bouchard-Côté, A., Aparicio, S., Sahinalp, S., and Shah, S., (2017) ReMixT: Clone Specific Genomic Structure Estimation in Cancer, *Genome biology*, 18(1), 140

Lenzi, A., **de Souza, C. P. E.**, Dias, R., Garcia, N. L. and Heckman, N. E. (2017) Analysis of aggregated functional data from mixed populations with application to energy consumption, *Environmetrics*, 28(2)

Eirew, P., Steif, A., Jaswinder, K., Ha, G., Yap, D., Farahani, H., Gelmon, K., Chia, S., Mar, C., Wan, A., Laks, E., Biele, J., Shumansky, K., Rosner, J., McPherson, A., Nielsen, C., Roth, A., Lefebvre C., Bashashati, A., **de Souza, C.**, Siu, C., Aniba, R., Brimhall, J., Oloumi, A., Osako, T., Bruna, A., Sandoval, J., Algara, T., Greenwood, W., Leung, K., Cheng, H., Xue, H., Wang, Y., Lin, D., Mungall, A., Moore, R., Zhao, Y., Lorette, J., Nguyen, L., Huntsman, D., Eaves, C. J., Hansen, C., Marra, M. A., Caldas, C., Shah, S. P., Aparicio, S. (2015) Dynamics of genomic clones in breast cancer patient xenografts at single cell resolution, *Nature* 518, 422–426

De Souza, C. P. E. and Heckman, N. E. (2014) Switching nonparametric regression models, *Journal of Nonparametric Statistics*, 26(4), 617-637 (winner of the 2014 Journal of Nonparametric Statistics Best Student Paper Award).

De Souza, C. P. E. and Dias, R. (2010) Introdução à Análise de Dados Funcionais (*Introduction to Functional Data Analysis*). Monograph from the 19th National Symposium of Probability and Statistics (135 pages). Published by Associação Brasileira de Estatística (*Brazilian Association of Statistics*), São Paulo, Brazil.

MANUSCRIPT IN PREPARATION

De Souza, C. P. E., Andronescu, M., and Shah, S. P., A probabilistic-based approach for clustering sparse single-cell DNA methylation data (expected submission Winter 2017/2018)

ACADEMIC AND PROFESSIONAL EXPERIENCE

Department of Statistics – University of British Columbia

Supervision of Fan Xu (undergraduate research assistant)
May/2015 – Aug/2015

Department of Statistics – University of British Columbia

Research Assistant
Supervisor: Professor Nancy Heckman
Sep/2008 – Sep/2013

Department of Statistics – University of British Columbia

Teaching Assistant, STAT 203 (Introductory Statistics for Non-Scientists)
Sep/2012 – Dec/2012

Department of Statistics – University of British Columbia

Co-supervision of Amanda Lenzi (visitor student under the Emerging Leaders in the Americas Program)
Sep/2012 – Dec/2012

Small Energy Group (now Pulse Energy)

MITACS' Accelerate Program Internship

Project: Robust Efficient Estimation of Energy Use
Academic Supervisor: Professor Nancy Heckman
Organization Sponsor: David Helliwell
Jan/2009 – Aug/2009

Department of Statistics – University of Campinas

Scientific Initiation Program

Project: Nonparametric tests of hypothesis for the proximity of two distributions

Supervisor: Professor Ronaldo Dias

Jul/2003 – Jul/2005

Department of Histology and Embryology – University of Campinas

Laboratory Technician - Fellowship from the Student Support Service

Supervisor: Professor Sarah Arana

Jan/2002 – Jun/2003

Danone (Biscuits Sector)

Campinas, SP, Brazil

Jan/2001 – May/2001 Production Supervisor

Jan/2000 – Dec/2000 Trainee (working on industrial production)

AWARDS AND FELLOWSHIPS**2014 Journal of Nonparametric Statistics Best Student Paper Award**

Paper: "Switching Nonparametric Regression Models"

Aug/2015

The Marshal Prize for 2014 (<http://www.stat.ubc.ca/Department/Marshall.php>)

International Partial Tuition Scholarship

Sep/2008 – Sep/2013

Faculty of Science Graduate Award

May/2009 – Apr/2013

19th National (Brazilian) Symposium of Probability and Statistics Travel Award

Jul/2010

MITACS ACCELERATE Fellowship

Jan/2009

Departmental Graduate Entrance Scholarship

Sep/2008

Master's CAPES Fellowship

Mar/2006 – Apr/2008

Scientific Initiation Program - PIBIC/CNPq Fellowship

Jul/2003 – Jul/2005

RESEARCH PRESENTATIONS

Talk: “A probabilistic-based approach for clustering sparse single-cell DNA methylation data”

2017 International Chinese Statistical Association – Canada Chapter Symposium

Vancouver, Canada, August 18-20, 2017

2017 Annual Meeting of the Statistical Society of Canada

University of Manitoba, Winnipeg, Canada, June 11-14, 2017

Talk: “Modeling Multi-Level Power Usage with Latent States and Smooth Functions”

2015 Joint Statistical Meetings

Seattle, USA, August 8-13, 2015

Talk: “Switching nonparametric regression models with an application to building power usage data”

2nd Conference for the International Society of Nonparametric Statistics

Cádiz, Spain, June 12-16, 2014

Talk: “Switching nonparametric regression models”

2013 Joint Statistical Meetings

Montreal, QB, Canada – August 3-8, 2013

41st Annual Meeting of the Statistical Society of Canada

University of Alberta, Edmonton, AB – May 26-29, 2013

Joint UBC-SFU Graduate Student Workshop in Statistics

Simon Fraser University at Harbour Centre, Vancouver, BC – March 16, 2013

Workshop: “An Introduction to Functional Data Analysis”

19th National Symposium of Probability and Statistics

São Pedro, SP, Brazil – July 26-30, 2010

Sole presenter of 6-hour workshop for researchers, graduate and undergraduate students

Workshop: “Introduction to Smoothing Techniques”

Graduate Student Computing Sessions

Department of Statistics, University of British Columbia, Vancouver, BC – June 21, 23, 2010

Sole presenter of 3-hour workshop for graduate students

Poster: “Hypothesis Tests for Functional Data Based on Distances: a Study Using Splines”

37th Annual Meeting of the Statistical Society of Canada

University of British Columbia, Vancouver, BC – May 31st to June 3rd, 2009

Poster: “An Introduction to Functional Data Analysis”

Workshop on Stochastic Processes Applied to Spatial Statistics: multi-scenario analysis and stochasticity in environmental prediction

Institute of Mathematics and Statistics – University of São Paulo

São Paulo, SP, Brazil – December 5-7, 2007

26th Brazilian Colloquium of Mathematics

IMPA – Institute of Pure and Applied Mathematics

Rio de Janeiro, RJ, Brazil – July 29th to August 3rd, 2007

Poster: "Functional Data Analysis: Smoothing Techniques and Covariance Structure"

11th Brazilian School of Probability

Maresias, SP, Brazil – August 5-11, 2007

Poster: "Nonparametric Tests of Hypothesis for the Proximity of Two Distributions Part 2"

School and Workshop on Probability Theory and Applications ICTP/CNPq

Campos do Jordão, SP, Brazil – January 21st to February 1st, 2007

17th National Symposium of Probability and Statistics

Caxambu, MG, Brazil – July 24-28, 2006

13th University of Campinas Scientific Initiation Congress

Campinas, SP, Brazil – September 28-29, 2005

Poster: "Nonparametric Tests of Hypothesis for the Proximity of Two Distributions Part 1"

12th University of Campinas Scientific Initiation Congress

Campinas, SP, Brazil – September 22-23, 2004

University of Campinas Open to the Public – 2004

Campinas, SP, Brazil – September 3-4, 2004

16th National Symposium of Probability and Statistics

Caxambu, MG, Brazil – July 26-30, 2004

MEETINGS AND WORKSHOPS ATTENDED (OTHER THAN THE ABOVE)

4th Annual Canadian Human and Statistical Genetics Meeting

Vancouver, BC, Canada – April 18-21, 2015

International Human Epigenome Consortium (IHEC) Science Day 2014

Vancouver, BC, Canada – October 8th, 2014

Scientific Writing

University of British Columbia, 6 sessions (3 hours each), May-June 2013

2010 Joint Statistical Meetings

Vancouver, BC, Canada – July 31st - August 5th, 2010

38th Annual Meeting of the Statistical Society of Canada

University of Laval, Quebec City, QB – May 23-26, 2010

Instructional Skills Program for International Teaching Assistants

University of British Columbia – September to November 2009

Introduction to WinBUGS

Department of Statistics, University of British Columbia – October 18th, 2008

MITACS' Skill Enhancement Technical Writing Workshop

Simon Fraser University at Harbour Centre, Vancouver, BC – August 26, 2008

Introduction to Stata

Nucleus of Studies of Public Politics, University of Campinas, Brazil – May 14th to June 16th, 2007

2nd Scientific Meeting of Graduate Students from the Institute of Mathematics, Statistics and Scientific Computing

University of Campinas – April 18-20, 2007

SERVICE

2nd Conference for the International Society of Nonparametric Statistics

Cádiz, Spain, June 12-16, 2014

Organizer of the session “Advanced Techniques Applied to Electrical Energy Management”

First Luncheon for Women Graduate Students in Statistics and Mathematics

March/2013

Organizer

Department of Statistics – UBC

Graduate Student Representative

July/2009 - July/2010

Joint UBC-SFU Graduate Student Workshop in Statistics

Vancouver, BC, April 10th, 2010

Member of the organizing committee

37th Annual Meeting of the Statistical Society of Canada

University of British Columbia

Vancouver, BC – May 31st to June 3rd, 2009

Volunteer

UNICAMP with Open Doors (UPA) – 2003/2004

IMECC – September 3-4, 2004

IMECC – August 29-30, 2003

Volunteer

PROFESSIONAL MEMBERSHIPS

American Statistical Association

Statistical Society of Canada

Institute of Mathematical Statistics

SOFTWARE SKILLS

Statistical Software: Proficient in R

Operating Systems: Mac OS X, Windows, Linux

Office and Publishing: LaTeX and Microsoft Office

LANGUAGES

Fluent English and Portuguese