Márcio Duarte Albasini Mourão

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Summary

- Highly skilled in research, statistics, and data processing and visualization.
- 10 years education and work experience in artificial intelligence/machine learning.
- 5 years experience developing computer models and analyzing data at the University of Michigan and at the Ohio State University as a postdoctoral researcher.
- Strong communication skills and extensive experience working in an interdisciplinary environment.

Professional Experience

Consulting for Statistics, Computing & Analytics Research (CSCAR) **University of Michigan**
Data Science Consultant *2016–2019*

- Advised several dozen clients on statistics, machine learning and data science related topics, resulting in 4 publications to date. Topics ranged from interpretation of p-values to identifying vessels in kidneys using deep learning/convolutional neural networks.
- Performed data cleaning, built statistical summaries, applied statistical methodology on research projects. Projects with clients included the investigation of the effects of stress and disease knowledge on Chronic Kidney Disease (CKD) and analysis of Raman spectral data to identify and quantify cellular components.
- Developed and taught 33 data science related workshops, with demonstrations developed in Python and MatLab. Topics included 'Best practices in scientific computing', 'Classification, regression and model selection', 'Supervised and unsupervised machine learning', 'Random forests' and 'Support vector machines'.
- Taught Stats 607 - Programming and Numerical Methods in Statistics (Python based) for the Statistics Department at the University of Michigan.

Mathematical Biosciences Institute **The Ohio State University**
Postdoctoral Researcher *2013–2016*

- Investigated P-Body mechanisms in the interaction network of the RNA silencing pathway.
- Used analytical and stochastic approaches to understand the formation of microtubule arrays.
- Developed a hybrid model to investigate the role of heterogeneity in aging.

Department of Molecular and Integrative Physiology **University of Michigan**
Postdoctoral Researcher *2011–2013*

- Developed a Monte-Carlo approach to study the effects of space in diffusion and reaction kinetics.
- Analyzed reaction kinetics data from stochastic simulations (Cover article).
- Designed and implemented a statistical method to compute the significance of oscillatory periods.

Skills

Languages: Python, MatLab, R, C++, C, Java, Mathematica, SQL.
Presentation Skills: Communicated research via oral and poster presentations at 15 scientific meetings.
Writing Skills: Published 17 peer-reviewed articles in scientific journals.

Education

Informatics and Computing — **Indiana University**
PhD (Advisor: Dr. Santiago Schnell, International Scholarship Awarded), Indiana — *2006–2011*
Specialization: Computational Biology & Complex Systems, Minor: Molecular Biology

Computational Biology — **Instituto Gulbenkian e Ciência**
Pre-PhD Program, Lisbon — *2005-2006*
Note: Year long interdisciplinary program with classes in computational biology

Informatics Engineering and Computers — **Universidade Técnica de Lisboa**
Masters (Advisor: Dr. Nuno Mamede), Lisbon — *2002–2005*
Specialization: Artificial Intelligence

Informatics Engineering and Computers — **Universidade Técnica de Lisboa**
Licentiate, Lisbon — *1997–2002*
Specialization: Artificial Intelligence

Selected Publications

- LaLone, Vernon and Fawaz, Maria V. and Morales-Mercado, Jomar and **Mourão, Márcio A.** and Snyder, Catherine S. and Kim, Sang Yeop and Lieberman, Andrew P. and Tuteja, Anish and Mehta, Geeta and Standiford, Theodore J. and Raghavendran, Krishnan and Shedden, Kerby and Schwendeman, Anna and Stringer, Kathleen A. and Rosania, Gus R. (2019). Inkjet-printed micro-calibration standards for ultraquantitative Raman spectral cytometry. Analyst, DOI: 10.1039/C9AN00500E.
- Pitchiaya, S., **Mourao, M.D.A.**, Jalihal, J., Xiao, L., Jiang, X., Chinnaiyan, A.M., Schnell, S. and Walter, N.G. (2019). Dynamic recruitment of single RNAs to processing bodies depends on RNA functionality. Mol. Cell 74, 521-533, DOI: 10.1016/j.molcel.2019.03.001.
- **M. A. Mourão**, Z. Harvanek, S. Schnell, S. Pletcher (2016). A Computational Approach to Studying Ageing at the Individual Level. Proceedings of the Royal Society B 283, 1824, DOI: 10.1098/rspb.2015.2346.
- **M. A. Mourão**, J. Hakim, S. Schnell (2014). Connecting the dots: the effects of macromolecular crowding on cell physiology (Review). Biophysical Journal 107, 12, 2761-2766, DOI: 10.1016/j.bpj.2014.10.051.
- **M. A. Mourão**, D. Kreitman and S. Schnell (2014). Unravelling the impact of obstacles in diffusion and kinetics of an enzyme catalysed reaction. Physical Chemistry Chemical Physics 16, 4492-4503. DOI: 10.1039/C3CP52417E.
- **M. A. Mourão**, S. Schnell, S. L. Shaw (2011). Macroscopic simulations of microtubule dynamics predict two steady-state processes governing array morphology. Computational Biology & Chemistry 35, 269-281. DOI: 10.1016/j.compbiolchem.2011.06.002.