Pablo F. Damasceno

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SKILLS:

- **Science & Research:**
  - Clear communication
  - Critical thinking
  - Initiative
  - Mentorship
  - Public speaking skills
  - Scientific writing
  - Self-motivation
- **Machine Learning & AI:**
  - Classification
  - Clustering
  - Image Processing
  - Neural Networks
  - Random Forest
  - Regression
- **Modeling:**
  - Genetic Algorithms
  - Molecular Dynamics
  - Monte Carlo
- **Programming & Workflow**
  - Python, Mathematica, git
  - C++, bash, pdb, Matlab
  - CUDA, AWS, Docker
- **Bench work:**
  - DNA folding
  - Electron microscopy
  - Nanop. functionalization

Education

Ph.D., Applied Physics (2015)
University of Michigan
Ann Arbor, MI

B.S., Physics (2009)
University of São Carlos
São Paulo, Brazil

Profile

I am a fast-learning, inter-disciplinary researcher who loves scientific challenges. With 18 peer-reviewed publications that together have over 1100 citations, I have a track record of initiating, refining, and completing projects with minimal guidance. I am a competent Python programmer proficient in the latest Machine Learning techniques: from data clustering and model classification to insight gathering and intuition building.

Experience

Postdoctoral Scholar in Radiology at UCSF | 2018-

- Machine Learning for neurodegenerative disease prediction
  - Spectral clustering classification of Alzheimer patients.
  - MCMC for modeling neurodegenerative disease propagation.
  - CNN / Autoencoder methods for classifying EEG spectra

Postdoctoral Scholar in Molecular Pharmacology at UCSF | 2015-2018

- Computational modeling in Python. I have built:
  - Workflows for microscopy image analysis.
  - Molecular Dynamics models of DNA folding and assembly.
  - Suites for geometrical manipulation and visualization of DNA.

PhD in Applied Physics, University of Michigan | 2009-2015

- Molecular modeling in Python. I have employed:
  - Monte Carlo simulations to identify the role of shape for nanoparticle self-assembly.
  - Evolutionary Algorithms (CMA-ES) to optimize nanoparticle shape for materials fabrication.
  - Molecular Dynamics simulations to evaluate how chemical interactions affect material's assembly propensity.
  - Markov Chain Monte Carlo to evaluate how geometry affects folding of objects in the nanoscale.
  - Finite Elements Method to optimize mechanical properties of origami-inspired flexible electronics.

Achievements

Publications / Places that featured my work:

- Nature Materials; Nature Communications; Science.
- Nature 'News & Views'; Physics.org; Reddit; Science Podcast.