Joaquín Ambía, PhD

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Professional Experience

University of Texas, Austin, TX May 2014 – Present
Research Associate (Software Development Lead, Industry Liaison)

- Work as the software development lead in the Formation Evaluation joint industry research consortium, which includes 25 oil and gas companies, such as Shell, Exxon Mobil, Baker Hughes, Schlumberger, and Conoco Philips. http://faculty.engr.utexas.edu/formation
- Develop and optimize new methods to process and analyze well logging data, as well as visualizing it. http://faculty.engr.utexas.edu/formation/software
- Gather and integrate new methods developed by other group members (students, postdocs, and research associates), as well as external collaborators (academic and industry) into our software 3D UTAPWeLS.
- Mentor and advice students and collaborators about best practices in software development.
- Closely collaborate with industry experts to understand their problems and propose solutions through our software.
- Organize, design and teach software workshops to expand the use of 3D UTAPWeLS.

Baylor College of Medicine, Houston, TX March 2011 – April 2014
Postdoctoral Associate

- Developed and implemented new methods to the Rosetta molecular modeling suite, https://www.rosettacommons.org/home
- Mentored and advised other group members in computational and analytical matters.
- CONACyT postdoctoral fellow.
- Co-PI in the awarded computational grant MCB120101 in the XSEDE system.
- Part of the top ranked Barth lab team in the world's elite membrane protein modeling competition "GPCR dock 2013".

ULSA High School, Mexico City, Mexico August 2004 – June 2005
High School Teacher

- Taught entry level physics
- Received the "San Juan Bautista de la Salle" award for excellence in teaching.

Professional Development

- Certificate in Software Projects Management (University of Texas at Austin)
- Inverse Problem with Applications to Well Logging (University of Texas at Austin)
- Linear Optimization (University of Texas at Austin)
- Interaction Design, focus on software user interface (UC San Diego, Coursera)
- Machine Learning (Stanford University, Coursera)

Education

University of Houston, Houston, TX, USA February 2011
Physics PhD

- Thesis: “Theoretical aspects of nucleic acids near a surface and its applications to biotechnology.”
- Developed and implemented Monte Carlo based models to better understand the behavior of nucleic acids near surfaces (bio-chip).
- Used my model to improve data interpretation and guide new technologies designs.
- Presented my work in multiple regional and national meetings (American Physical Society (APS), Biophysical Society).
- Student travel award for the Texas and Four Corners sections 2008 APS meeting
- Keck Nanotechnology Fellow (2008)

ITESM (Monterrey Tech), Monterrey, Nuevo Leon, Mexico
Physics Engineering BSc May 2004

- Final project on “Computational design of power windmill sails using genetic algorithms”
- Secretary of the physics engineering student association (2002-2003).
- Physics engineering association sports manager (2002-2004).

Other

- Technical: Matlab, Python, Fortran, C, C++, Linux, bash.
- Language: English (fluent), Spanish (native)
- Citizenship: American, Spanish, Mexican

Selected Publications

- Fast Bayesian Inversion Method for the Generalized Petrophysical and Compositional Interpretation of Multiple Well Logs with Uncertainty Quantification
  T Deng, J Ambía, C Torres-Verdín
  SPWLA 60th Annual Logging Symposium

- Petrophysical Evaluation of Thinly Laminated Depositional Sequences Using Statistical Matching Procedures
  D González, J Ambía, C Torres-Verdín
  SPWLA 60th Annual Logging Symposium

- Automatic Interpretation of Well Logs with Lithology-Specific Deep-Learning Methods
  AP Peyret, J Ambía, C Torres-Verdín, J Strobel
  SPWLA 60th Annual Logging Symposium

- Enhancing Structure Prediction and Design of Soluble and Membrane Proteins with Explicit Solvent-Protein Interactions
  JK Lai, J Ambía, Y Wang, P Barth
  Structure 25(11), 1758-1770. e8

- Computational design of ligand binding membrane receptors with high selectivity.
  Feng, X., Ambía, J., Chen, K-J, Young, Barth P
  Nature Chemical Biology, 13(7), 715

- Advances in GPCR modeling evaluated by the GPCR Dock 2013 assessment: meeting new challenges.
  Irina Kufareva,1 Vsevolod Katritch,2 participants of GPCR Dock 2013 (Box 1), Raymond C. Stevens,2,* and Ruben Abagyan1,*
  Structure. 2014 Aug 5; 22(8): 1120–1139.

- A model for structure and thermodynamics of ssDNA and dsDNA Near a Surface: a Coarse Grained Approach.
  Ambía-Garrido J, Vainrub A, Pettitt BM
  Comput Phys Commun. 181 (12), 2001

- Free Energy Calculations for DNA Near Surfaces Using an Ellipsoidal Geometry.
  Ambía-Garrido J, Pettitt BM.
  Commun Comput Phys. 3 (5):1117-1131