Wilka Torrico De Carvalho

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Education

- Masters of Science in Computer Science — May 2017
  University of Southern California (USC) — Los Angeles, CA
- Bachelors of Science in Physics — May 2015
  Stony Brook University (SBU) — Stony Brook, NY

Honors and Awards

- Runner-up, SCMLS poster competition on machine learning applications — Nov. 2016
- NSF Graduate Research Fellowship in neuroscience — Apr. 2015
- SBU Provost Award for Academic Excellence (20/3700 graduating students chosen by faculty) — Apr. 2015
- 2nd Place in Physics and Mathematics, 23rd Annual CSTEP Statewide Student Conference — Apr. 2015
- SBU Researcher of the Month (1 school-wide per month) — Dec. 2014
- Howard Hughes Medical Institute Minority Undergraduate Research Fellowship — Jun. 2014
- Life Sciences Summer Undergraduate Research Program Fellowship — Jun. 2013
- Sigma Pi Sigma Physics Honor Society (only 2nd year student inducted) — Mar. 2013
- SBU Scholar of Science, Technology, Engineering and Math — Sep. 2012
- Louis Stokes Alliance for Minority Participation Scholar — Sep. 2011
- Dean's List

Conference Publications

* denotes co-first author

Wilka Carvalho*, Sanjay Purushotham*, Yan Liu. "Variational Recurrent Adversarial Deep Domain Adaptation" In 5th International Conference on Learning Representations (ICLR), 2017 (Under Review)

Wilka Carvalho*, Sanjay Purushotham*, Yan Liu. "Variational Adversarial Deep Domain Adaptation for Health Care Time Series Analysis" In 29th Annual Conference on Neural Information Processing Systems Workshop on Machine Learning for Healthcare (NIPS ML4HC), 2016 **(Spotlight)**

Computational Research Experience

University of Southern California, Computer Science Department (Yan Liu) — Los Angeles, NY
Machine Learning Group — Winter 2016 –

- Used Python and Theano to develop an unsupervised learning algorithm for performing domain adaptation on time-series data
- Identified mid-level representation to use for empirically verifying the occurrence of domain adaptation

Stony Brook University, Physics Department (Axel Drees) Stony Brook, NY
Heavy Ion Research Group Winter 2013 – Summer 2015

DOE funded project: *"Modeling a Detection of internally reflected Cherenkov light (DIRC) Particle Detector for High-Multiplicity Collisions"*

- Created Monte Carlo to generate the Cherenkov light data of a DIRC particle detector
- Developed a pattern recognition algorithm to identify particles from the generated Cherenkov light data
- Led software development of C++ libraries and programs used for simulations and analyses

Stony Brook University, Neurobiology Department (Giancarlo La Camera) Stony Brook, NY
NSF LSAMP Scholar in Computational Neuroscience Group Fall 2014

Project: *"Spectral Analysis of Rodent Neural Data"*

- Performed spectral analyses on neural data to determine behavioral correlates of neural activity

Caltech, Computations and Neural Systems Department (Ralph Adolphs) Pasadena, CA
Howard Hughes Medical Institute MURF Fellow in Emotion and Social Cognition Laboratory Summer 2014

HHMI funded project: *"Modeling the Influence of Situational Variation on Theory of Mind"*

- Developed an experiment to study the cognitive process of interring traits about others
- Wrote a web platform for administering experiments with user input-contingent trial progression and data presentation

University of Minnesota, Biomedical Engineering Department (Matthew Johnson) Minneapolis, MN
Neuromodulation Research and Technology Laboratory Summer 2013

NIH funded project: *"Simulating Deep Brain Stimulation"*

- Simulated deep brain stimulation of a sub-cortical structure of the brain linked to Parkinson's disease with a library developed in Python that interfaced with simulation environment NEURON
- Developed framework for future python-NEURON interfacing

Additional Research Experience

National Central University, Mechanical Engineering Department (Shenqyang Shy) Jhongli City, Taiwan
Turbulent Combustion Laboratory Summer 2012

project: *"Testing Theories in Fluid Dynamics"*

- Explored boundary layer conditions, and laminar and turbulent flow of fluids through pipes of varying cross-sections

Presentations

- *"Variational Adversarial Deep Domain Adaptation for Healthcare Time Series",* Southern California Machine Learning Symposium, California Institute of Technology, Pasadena, CA, November 2016, **runner-up, best poster**
- *"Modeling a DIRC Particle Detector for High-Multiplicity Collisions",* 23rd Annual CSTEP Statewide Student Conference, Bolton Landing, NY, April 2015, **2nd place, physics and math**
- *"Modeling the Influence of Situational Variation on Theory of Mind"*, Summer Seminar Day, California Institute of Technology, Pasadena, CA, August 2014
- *"Transitioning from Hoc to Python as the Tool for Computational Modeling of Neurons, Networks, and Deep Brain Stimulation",* 22nd Annual CSTEP Statewide Student Conference, Bolton Landing, NY, April 2014
- *"Modeling a Detection of internally reflected Cherenkov light (DIRC) Particle Detector for High-Multiplicity Collisions",* URECA Celebration of Undergraduate Research & Creativity, Stony Brook University, Stony Brook, NY, April 2014

• *"Transitioning from Hoc to Python as the Tool for Computational Modeling of Neurons, Networks, and Deep Brain Stimulation"*, Poster Symposium, University of Minnesota, Minneapolis, MN, August 2013

Panels

• *Research and Fellowships Week NSF Panel*, Los Angeles, CA, November 2016
• *National Society of Black Engineers Grad Panel*, Los Angeles, CA, October 2016
• *Graduate School External Fellowship Boot Camp*, Los Angeles, CA, August 2016
• *Engineering Graduate Diversity Symposium*, Los Angeles, CA, October 2015
• *Black Student Association: What it Takes to go to Graduate School*, Los Angeles, CA, October 2015
• *Collegiate Science and Technology Entry Program Undergraduate Research Panel*, Stony Brook, NY, October 2014

Professional Affiliation
• Society of Physics

Programming Experience
• Python, C++, Java, MATLAB, JavaScript, PHP, Fortran95, Hoc, and shell script

Software Experience
• Theano, Tensorflow, Keras, Latex, ROOT, NEURON