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

- NSF Graduate Research Fellowship — Apr. 2015
- SBU Provost Award for Academic Excellence (20/3700 graduating students chosen by faculty) — Apr. 2015
- 2nd Place in Physics and Mathematics at 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 NSF Scholar — Sep. 2011
- Dean's List

Computational Research Experience

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

- Used Python and deep learning framework Theano to develop a neural network model to perform domain adaptation via adversarial training using multiple sources

Stony Brook University, Physics Department (Axel Drees) — Stony Brook, NY
Heavy Ion Research Group — Spring 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

- Performed spectral analyses of neural data using MATLAB
- Used temporal patterns 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 experimental paradigm to study the role of *attribution* on *theory of mind*
- 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: *"Transitioning from Hoc to Python as the Tool for Computational Modeling of Neurons, Networks, and 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

- *"Modeling a DIRC Particle Detector for High-Multiplicity Collisions",* 23rd Annual CSTEP Statewide Student Conference, Bolton Landing, NY, April 2015
- *"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

- *Graduate School External Fellowship Boot Camp*, Los Angeles, CA, August 2016
- *Engineering Graduate Diversity Symposium*, Los Angeles, CA, October 2015
- *Black Student Association on Graduate Fellowships*, 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, Latex, ROOT, NEURON