

Wilka Torrico de Carvalho

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Education

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

Honors and Awards

- NSF Graduate Research Fellowship Apr. 2015
- SBU Provost Award for Academic Excellence (20 students chosen from graduating class of 3700) Apr. 2015
- 2nd Place in Physics and Mathematics at 23rd Annual CSTEP Statewide Student Conference Apr. 2015
- SBU Undergraduate Research & Creative Activities Researcher of the Month Dec. 2014
 - <http://www.stonybrook.edu/commcms/ureca/feature/December2014.html>
- 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 student inducted as a sophomore) 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

- 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
 - <https://github.com/wcarvalho/dirc-detector>

- 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
 - <https://github.com/wcarvalho/NEXT-Psych>

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

NSF funded 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

Professional Affiliation

- Society of Physics

Programming Experience

- C++, Python, MATLAB, JavaScript, PHP, Fortran95, Hoc, and shell script

Software Experience

- Latex, ROOT, NEURON, Git