

Jose J. BOUZA

PERSONAL DATA

PLACE AND DATE OF BIRTH: Havana, Cuba | July 1998
EMAIL: [josejbouza@gmail.com](mailto: josejbouza@gmail.com)

RESEARCH EXPERIENCE

- JUNE 2018 - | *Topological Data Analysis - Computational Topology*
Adviser: PROF. PETER BUBENIK
An undergraduate member of the Topological Data Analysis group, directed by Professor Peter Bubenik. Currently working on developing software that brings together several Persistent Homology tools into a self contained and efficient R package. This has required proving stability guarantees about specific Homological descriptors.
- JULY 2018 - | *Medical Vision - Algorithm Development*
Advisers: DR. GIRIDHAR KALAMANGALAM, PROF. BABA C. VEMURI
A cross-disciplinary effort between the University of Florida department of Neurology and the Computer Vision and Medical Imaging Lab. As lead researcher and developer, I am designing and implementing algorithms for anonymization of patient videos while maintaining body pose and facial expressions. This will help muscle movement disorder researchers easily share anonymized patient videos. This tools incorporates research from deep learning and computer graphics to develop an algorithm that works in the wild and requires minimal input from the user.
- NOVEMBER 2017 - | *Comuter Vision - Algorithm Development*
Adviser : PROF. BABA C. VEMURI
An undergraduate member of the Computer Vision and Medical Imagining Lab, directed by Professor Baba C. Vemuri. Currently working on several projects that use tools from Differential Geometry to develop computer algorithms in novel domains including Diffusion MRI. In particular, the deep learning revolution in computer vision has given state of the art results across nearly all computer vision problems. We are extending these techniques naturally to manifold valued data.
- JAN - JULY 2017 | *Pure Mathematics - Differential Projective Geometry*
Adviser : PROF. SAMUEL BALLAS
Weekly meetings, discussions, and expositions with the goal of developing a research level of understanding of the field. Has helped to develop strong critical thinking and research skills, as well as technical writing skills. Projective Geometry has applications in physics and computer graphics.

PAPERS

- (Submitted - ICLR 2018) Chakraborty, R., [Bouza, J.](#), Manton, J. and Vemuri, B. (2018). [ManifoldNet: A Deep Network Framework for Manifold-valued Data](#)

WORK EXPERIENCE

JUL-DEC 2016 | Independent iOS Developer
Xenon Chemistry - A Scientific and Educational iPhone app
Developed a chemical computation backend utilizing linear algebra to solve various computational chemistry problems such as reaction balancing and stoichiometric analysis. Interfaced with an NHA chemical database REST API to access chemical compound data. Designed and developed a responsive, user-oriented interface to provide easy access to queries related to chemical compounds and reactions. (Currently not available on App Store to avoid paying a developer fee, but a copy can be provided upon request).

EDUCATION HISTORY

CURRENT Bachelors of Science, **University of Florida**, Gainesville
Majors: Computer Science, Mathematics
GPA: 3.7/4

2016-2017 Bachelors of Science, **Florida State University**, Tallahassee
Majors: Computer Science, Mathematics (Uncompleted due to transfer.)
GPA: 3.9/4

JULY 2016 Dual Enrollment **Florida International University**, Miami
GPA: 4/4

JUNE 2016 High School Graduation **John A. Ferguson Senior High School**, Miami

COURSEWORK DETAILS - GRADUATE CLASSES TAKEN

COURSE	GRADE	CREDIT HRS
REAL ANALYSIS 1 (MAA 6616)	In Progress	3
COMPUTER VISION (CAP5416)	In Progress	3
ALGEBRAIC TOPOLOGY (MTG 6346)	A	3
ALGEBRAIC TOPOLOGY 2 (MTG 6347)	A	3
MATH FOR INTELLIGENT SYSTEMS (COT 5615)	A	3
ML OF TIME SERIES VALUED DATA (EEE 6504)	B	3
ABSTRACT ALGEBRA 2 (MAS 5312)	B+	3
	Total	21
	GPA	3.6

SCHOLARSHIPS AND CERTIFICATES

JULY 2016 | National Advanced Placement Scholar Award
Nationally recognized award for performance in *CollegeBoard* advanced placement university examinations.

JUNE 2015 | SAT®: 1380 (V:700 M:680) 92nd percentile

LANGUAGES

ENGLISH: Mothertongue
SPANISH: Fluent

RELEVANT SOFTWARE SKILLS

Programming Languages:

BEGINNER HTML, Swift, Bash, MATLAB
INTERMEDIATE C++, C, Python,

UNIX Tools: Make, GDB Debugger, LLDB Debugger, G++, Clang++, GCC, Grep, Vim

Development Environments: Apple XCode®, Microsoft Visual Studios®

Other: Linux (Ubuntu, Mint), Microsoft Office Suite, Git, Mercurial, Doxygen

ACADEMIC AND PROFESSIONAL INTERESTS

Technology, Open-Source, Machine Learning, Artificial Intelligence, Signal Processing
Differential Geometry, Algebraic Topology, Probability Theory