Sambit **Panda**

Graduate Student

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Research Interests

Data Science, Computer Science, Neuroscience, Biomedical Engineering

Education

Johns Hopkins University — *Baltimore, MD*

M.S.E. in Biomedical Engineering (Data Science) — *Aug. 2018 - Exp. May 2020*

- Worked as a graduate student in NeuroData which is a lab led by my graduate advisor Dr. Joshua T. Vogelstein
- Cum GPA: 3.34

North Carolina State University & University of North Carolina at Chapel Hill — *Raleigh, NC & Chapel Hill, NC*

B.S. in Biomedical Engineering (Bioinstrumentation) & B.S. in Biology (Human Biology) — *Aug. 2014 - May 2018*

- Double majored in Biomedical Engineering (a joint program with University of North Carolina at Chapel Hill) and Biology at North Carolina State
- Received the Goodnight Scholarship to help pay for my education which is a full ride scholarship given to North Carolina residents who are majoring in STEM
- Cum GPA: 3.61

Research

Publications

Panda, S., Palaniappan, S., Xiong, J., Swaminathan, A., Ramachandran, S., Bridgeford, E. W., … Vogelstein, J. T. (2019). `mgcpy`: A Comprehensive High Dimensional Independence Testing Python Package. *ArXiv:1907.02088 [Cs, Stat]*. Retrieved from http://arxiv.org/abs/1907.02088

Wilson, L. R., **Panda, S.**, Schmidt, A. C., & Sombers, L. A. (2018). Selective and Mechanically Robust Sensors for Electrochemical Measurements of Real-Time Hydrogen Peroxide Dynamics in Vivo. *Analytical Chemistry*, *90*(1), 888–895. https://doi.org/10.1021/acs.analchem.7b03770

Research Experience

NeuroData — *Baltimore, MD*

Graduate Assistant — *May 2019 - PRESENT*

- Created `mgc` a comprehensive high dimensional independence testing Python package, with preprints of the paper on arXiv and submitted for publication in the Journal of Statistical Software.
- Integrated MGC, a powerful multivariate independence test, within SciPy, specifically `scipy.stats`, a major python package.
- Working on a paper focused on non-parametric *k*-sample testing.

Sombers Lab — *Raleigh, NC*

Research Assistant — *Nov. 2014 - Jun. 2018*

- Helped write a paper about a new electrochemical sensor to selectively monitor hydrogen peroxide published in ACS Analytical Chemistry.
- Contributed to another paper (in route to publication) that helped correlate electrochemical data between the various analytes to quantified abnormal involuntary movements.

Burleson Research Technologies — *RTP, NC*

Intern — *May 2015 - Sep. 2015*

- Helped administer drugs to rats and mice through various methods including oral gavage, *i.p.*, *i.v.*.
- Helped ensure that lab ran under GLP regulations.
- Helped in a study by harvesting organs for rats.

Oral Presentations

2018	**Honors Capstone Celebration**, "Hydrogen Peroxide, Dopamine, and Serotonin: Overlapping Chemical Systems Contribute to the Control of Dyskinetic Movements in the Rat During Chronic L-DOPA Treatment for Parkinson's Disease"	*Raleigh, NC*
2018	**BME Design Symposium**, "Developing Solutions for Hand Spasticity"	*RTP, NC*
2015-2018	**i4 Pitches**, "Surgical Site Infection Prevention" and "Developing Solutions for Hand Spasticity"	*RTP, NC*

Poster Presentations

2018	**BME Design Symposium**, "Developing Solutions for Hand Spasticity"	*RTP, NC*
2018	**Pittcon**, "Hydrogen peroxide specific sensors for *in vivo* measurements using chronically implanted carbon-fiber microelectrodes"	*Orlando, FL*
2016	**Triangle Student Research Competition**, "Multiple Sources Contribute to Extracellular Hydrogen Peroxide Dynamics in the Striatum"	*RTP, NC*
2016-2017	**Keck Center for Behavioral Biology Conference**, "Multiple Sources Contribute to Extracellular Hydrogen Peroxide Dynamics in the Striatum" and "Highly Selective and Mechanically Robust Sensors for Electrochemical Measurements of Real-Time Hydrogen Peroxide Dynamics *in vivo*"	*Raleigh, NC*
2016-2017	**Society for Neuroscience**, "Multiple Sources Contribute to Extracellular Hydrogen Peroxide Dynamics in the Striatum" and "Highly Selective and Mechanically Robust Sensors for Electrochemical Measurements of Real-Time Hydrogen Peroxide Dynamics *in vivo*'	*San Diego, CA & Washington, DC*
2016, 2018	**Triangle Society for Neuroscience**, "Determining the Sources that Contribute to Extracellular Hydrogen Peroxide Dynamics in the Striatum using a Highly Selective and Mechanically Robust Sensor" and "Highly Selective and Mechanically Robust Sensors for Electrochemical Measurements of Real-Time Hydrogen Peroxide Dynamics *in vivo*"	*RTP, NC*
2015-2017	**Undergraduate Research Symposium**, "Determining the Sources that Contribute to Extracellular Hydrogen Peroxide Dynamics in the Striatum using a Highly Selective and Mechanically Robust Sensor", "Multiple Sources Contribute to Extracellular Hydrogen Peroxide Dynamics in the Striatum", and "Highly Selective and Mechanically Robust Sensors for Electrochemical Measurements of Real-Time Hydrogen Peroxide Dynamics *in vivo*"	*Raleigh, NC*

Teaching

Joint Department of Biomedical Engineering at North Carolina State University & University of North Carolina at Chapel Hill — *Raleigh, NC*

Teaching Assistant — *Oct. 2017 - Dec 2017*

- Taught an Introduction to MATLAB class (BME 201).
- Ran two lab sections where students would come in and solve the coding problem that was assigned to them.
- Graded students' lab code, homework assignments, and tests for one of the sections.

Joint Department of Biomedical Engineering at North Carolina State University & University of North Carolina at Chapel Hill — *Raleigh, NC*

Teaching Assistant — *Jan. 2017 - May 2017*

- Taught an Introduction to Circuits class (BME 210).
- Ran a lab section where students would learn how to put together various circuits.
- Graded two lab quizzes were students would have 30 minutes to finish and test four circuits and graded students' homework for the class.

Skills & Relevant Courses

Programming	Python, MATLAB, Java, C/C++, R, Git, LaTeX
Courses	BME Microcontroller Applications, Bioelectricity, Data Mining, Fundamentals of Biomedical Instrumentation, Principles of Biochemistry, Introduction to Probability, Linear Algebra, Medical Instrumentation, Neuro Data Design, Introduction to Statistics, Mathematical Foundations of BME

Honors & Awards

2018	**Magna Cum Laude**, North Carolina State University	*Raleigh, NC*
2018	**University Honors Program**, North Carolina State University	*Raleigh, NC*
2018	**Outstanding Capstone Award**, University Honors Program	*Raleigh, NC*
2015, 2017-2018	**1st Place**, i4 Pitch Competition	*RTP, NC*
2014-2017	**Goodnight Scholars Enrichment Grants**, North Carolina State University	*Raleigh, NC*
2014	**Goodnight Scholarship**, North Carolina State University	*Raleigh, NC*
2014	**National Merit Corporate Scholarship**, National Merit Scholarship	*Raleigh, NC*