Sambit **Panda**

Ph.D. Student

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Research Interests

Data Science, Computer Science, Neuroscience, Biomedical Engineering

Education

Johns Hopkins University · Baltimore, MD

Ph.D. in Biomedical Engineering · *July. 2020 - Present*

- Worked as a Ph.D. student in NeuroData which is a lab led by my graduate advisor Dr. Joshua T. Vogelstein
- Recieved a Compuational Biology Fellowship from Johns Hopkins University to help pay for my first year

Johns Hopkins University · Baltimore, MD

M.S.E. in Biomedical Engineering · *Aug. 2018 - May 2020*

- Worked as a graduate student in NeuroData which is a lab led by my graduate advisor Dr. Joshua T. Vogelstein
- Cum GPA: 3.69

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

B.S. in Biomedical Engineering & B.S. in 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

Shen, C., **Panda, S.**, & Vogelstein, J. T. (2021). The Chi-Square Test of Distance Correlation. *Journal of Computational and Graphical Statistics*, *0*(ja), 1–21. `https://doi.org/10.1080/10618600.2021.1938585`.

Panda, S., Shen, C., Perry, R., Zorn, J., Lutz, A., Priebe, C. E., & Vogelstein, J. T. (2021). Nonpar MANOVA via Independence Testing. *ArXiv:1910.08883 [Cs, Stat]*. `http://arxiv.org/abs/1910.08883`.

Shen, C., **Panda, S.**, & Vogelstein, J. T. (2020). Learning Interpretable Characteristic Kernels via Decision Forests. *ArXiv:1812.00029 [Cs, Stat]*. `http://arxiv.org/abs/1812.00029`.

Panda, S., Palaniappan, S., Xiong, J., Bridgeford, E. W., Mehta, R., Shen, C., & Vogelstein, J. T. (2020). `hyppo`: A Multivariate Hypothesis Testing Python Package. *ArXiv:1907.02088 [Cs, Stat]*. `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 · *June 2019 - Present*

- Created `hyppo` a comprehensive multivariate hypothesis testing Python package.
- Integrated MGC, a powerful multivariate independence test, within SciPy, specifically `scipy.stats`, a major python package.
- Wrote a number of papers on developing new methods for more robust and powerful multivariate hypothesis tests.

Sombers Lab · Raleigh, NC

Research Assistant · *Nov 2014 - May 2018*

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

Burleson Research Technologies   *RTP, NC*

INTERN   *May - 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	**i4 Final Pitch**, "Developing Solutions for Hand Spasticity"	*RTP, NC*
2018	**i4 Pitch 2**, "Developing Solutions for Hand Spasticity"	*RTP, NC*
2017	**i4 Pitch 1**, "Developing Solutions for Hand Spasticity"	*RTP, NC*
2018	**BME Design Symposium**, "Developing Solutions for Hand Spasticity"	*RTP, NC*
2016	**i4 Pitch 2**, "Surgical Site Infection Prevention"	*RTP, NC*
2015	**i4 Pitch 1**, "Surgical Site Infection Prevention"	*RTP, NC*

POSTER PRESENTATIONS

2021	**BRAIN**, "Nonparametric MANOVA via Independence Testing"	*Online*
2018	**Triangle Society for Neuroscience**, "Highly Selective and Mechanically Robust Sensors for Electrochemical Measurements of Real-Time Hydrogen Peroxide Dynamics *in vivo*"	*RTP, NC*
2018	**BME Design Symposium**, "Developing Solutions for Hand Spasticity"	*RTP, NC*
2018	**Pittcon**, "Hydrogen Peroxide-Specific Sensors for Chemical Measurements in Intact Brain Tissue Using Fast-Scan Cyclic Voltammetry"	*Orlando, FL*
2017	**Keck Center for Behavioral Biology Conference**, "Highly Selective and Mechanically Robust Sensors for Electrochemical Measurements of Real-Time Hydrogen Peroxide Dynamics *in vivo*"	*Raleigh, NC*
2017	**Society for Neuroscience**, "Hydrogen peroxide-specific sensors for *In vivo* measurements using carbon-fiber microelectrodes"	*Washington, DC*
2017	**Undergraduate Research Symposium**, "Hydrogen Peroxide Specific Sensors For *In Vivo* Measurements Using Chronically Implanted Carbon-fiber Microelectrodes."	*Raleigh, NC*
2017	**Undergraduate Research Symposium**, "Hydrogen peroxide specific sensors for *in vivo* measurements using chronically implanted carbon-fiber microelectrodes."	*Raleigh, NC*
2016	**Keck Center for Behavioral Biology Conference**, "Multiple Sources Contribute to Extracellular Hydrogen Peroxide Dynamics in the Striatum"	*Raleigh, NC*
2016	**Society for Neuroscience**, "Multiple Sources Contribute to Extracellular H_2O_2 Dynamics in the Striatum."	*San Diego, CA*
2016	**Triangle Student Research Competition**, "Multiple Sources Contribute to Extracellular Hydrogen Peroxide Dynamics in the Striatum"	*RTP, NC*
2016	**Undergraduate Research Symposium**, "Multiple Sources Contribute to Extracellular H_2O_2 Dynamics in the Striatum."	*Raleigh, NC*
2016	**Undergraduate Research Symposium**, "Determining the Sources That Contribute to Extracellular H2O2 Dynamics in the Striatum."	*Raleigh, NC*
2016	**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"	*RTP, NC*

Teaching

Johns Hopkins University   *Raleigh, NC*

TEACHING ASSISTANT   *Aug 2020 - May 2021*

- Taught NeuroDataDesign I & II (EN.580.691 & 692).
- Ran lecture section where students presented progress on their final projects weekly.
- Graded final projects and determined grades for both courses.

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.

Honors & Awards

2021	**SciPy Conference Mini Symposium Chair**, SciPy 2021	*Online*
2020	**Computational Biology Fellowship**, Johns Hopkins University	*Baltimore, MD*
2020	**SciPy Conference Mini Symposium Chair**, SciPy 2020	*Online*
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*
2018	**1st Place**, i4 Pitch Competition	*RTP, NC*
2017	**1st Place**, i4 Pitch Competition	*RTP, NC*
2017	**Goodnight Scholars Enrichment Grant**, North Carolina State University	*Raleigh, NC*
2016	**Goodnight Scholars Enrichment Grant**, North Carolina State University	*Raleigh, NC*
2015	**1st Place**, i4 Pitch Competition	*RTP, NC*
2015	**Goodnight Scholars Enrichment Grant**, North Carolina State University	*Raleigh, NC*
2014	**Goodnight Scholars Enrichment Grant**, 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*