**Brandi Patrice Smith**

P.O. Box 1133

Champaign, IL 61824

[brandis2@illinois.edu](mailto:brandis2@illinois.edu)

(662) 299-7035

**EDUCATION**

University of Illinois at Urbana-Champaign

**Doctor of Philosophy , Informatics 2021**

**Concentration – Health and Medical Informatics**

**Advisor: Rebecca Lee Smith**

Mississippi State University, Starkville, MS

**Masters of Science, Mathematics 2016**

Minor in Statistics

Mississippi Valley State University, Itta Bena, MS

**Bachelors of Science, Mathematics 2014**

*Magna cum Laude*

Minor in Computer Science

**RESEARCH EXPERIENCE**

2018 **Illinois Natural History Survey, Prairie Research Institute, UIUC**

HD Tech

* Responsible for inputting survey data into SPSS for data analysis
* Responsible for opening and sorting survey data for data entry

2017 **Madak-Erdogan Lab**

* + Analyze RNA sequence reads from mice models to identify differentially regulated genes
  + Utilize cluster nodes in UIUC’s Biocluster (Linux Environment) to trim, map, align, and read sequencing counts
  + Statistically analyzed reads in R to normalize and create general linear model for likelihood ratio tests and identification of differentially expressed genes
  + Use of data visualization tools such as Venn Diagrams and Cluster 3.0 for creation of heatmaps
  + Machine learning for toxicogenomics analysis

2017 **Dow Agrosciences, Research Park at the UIUC**

Data Analyst

* Researched large toxicogenomics databases for analysis of gene expression data

2014 **Human Genome Sequencing Center, Baylor College of Medicine, Houston, TX**

Research Assistant

* Enhanced a MySQL database for the startup of a gene search tool while gaining skills in NOSQL, MySQL, Tomcat, and Perl
* Worked with team members to enhance the usability of the gene search engine by initiating a new task of natural language processing
* Wrote a research paper and presented it to Director Richard Gibbs at Baylor College of Medicine’s Human Genome Sequencing Center

2013 **USDA Agricultural Research Service, Mississippi State University, Starkville, MS**

Research Assistant

* + Utilized programming scripts for the prediction of gene expression in maize, while optimizing a DNA sequencing tool
  + Worked with a team of geneticists, biologists, and scientists to understand the data before computationally analyzing the data
  + Wrote a script to locate linkage disequilibrium between genes in maize to add to an existing programming pipeline
  + Helped to write a script to automatically align maize DNA sequences

2012 **School of Informatics and Computing, Indiana University, Bloomington, IN**

**Research Assistant**

* Researched the parallel and Map-reduce programming model to analyze breast cancer data
* Worked independently researching the Map-reduce model and its significance and then ran a program to further understand the model and its results in relation to breast cancer data

**TEACHING EXPERIENCE**

2019**University of Illinois at Urbana-Champaign**

**Teaching Assistant – to Dr. Alex Lipka, Applied Statistical Methods I**

* + Review, discuss, and test students on statistical concepts including – descriptive statistics, probability, and statistical inferences

2019 **Mississippi Valley State University**

**Instructor – College and Intermediate Algebra**

* + Taught and reviewed algebraic concepts including – linear and quadratic equations, inequalities, higher order polynomials, etc.

2018 **University of Illinois at Urbana-Champaign**

**Teaching Assistant – to Dr. Michael Haberman, Introduction to Python for Data Science**

* Discussion of fundamental programming functions through Piazza web platform
* Grading of programming projects

2015-16 **Mississippi State University, Starkville, MS**

**Instructor – College Algebra**

* Developed a syllabus and overall course structure and implementation of materials designed to enforce algebra concepts
* Design a teaching study plan for each algebra concept that will be discussed in class

2014 **Mississippi State University, Starkville, MS**

**Teaching Assistant – to Instructor Julie Nation, Trigonometry**

* Met with students upon request and graded all tests
* Monitored students to ensure attentiveness during lecture

**PUBLICATIONS**

2017 Chen KLA, Zhao YC, Hieronymi K, **Smith BP**, Madak-Erdogan Z (2017) Bazedoxifene and conjugated estrogen combination maintains metabolic homeostasis and benefits liver health. PLoS ONE 12(12): e0189911. https://doi.org/10.1371/journal.pone.0189911

2018 **Smith, B. P**., & Madak-Erdogan, Z. (2018). Urban neighborhood and residential factors associated with breast cancer in African American women: A systematic review. Hormones and Cancer, *9*(2), 71-81.

2019 Madak-Erdogan Z, Band S, Zhao YC, **Smith BP**, Kulkoyluoglu-Cotul E, Zuo Q, Casiano AS, Wrobel K, Rossi G, Smith RL, Kim SH. Free fatty acids rewire cancer metabolism in obesity-associated breast cancer via estrogen receptor and mTOR signaling. Cancer research. 2019 Jan 1:canres-2849.

2019 Kulkoyluoglu-Cotul E, **Smith BP**, Wrobel K, Zhao YC, Chen KLA, Hieronymi K, Imir OB, Duong K, O'Callaghan C, Mehta A, Sahoo S, Haley B, Chang H, Landesman Y, Madak-Erdogan Z. Combined Targeting of Estrogen Receptor Alpha and XPO1 Prevent Akt Activation, Remodel Metabolic Pathways and Induce Autophagy to Overcome Tamoxifen Resistance. Cancers. 2019; 11(4):479.

**CONFERENCE PRESENTATIONS**

2018 **A machine learning-based approach to identify biomarkers of environmental toxicant exposures relevant to liver cancer disparities in rural Illinois;** 11th AACR Conference on The Science of Cancer Health Disparities in Racial/Ethnic Minorities and the Medically Underserved, New Orleans, LA

2018 **Urban neighborhood and residential factors associated with breast cancer in African American women: A systematic review;** American Association for Cancer Research, Health Disparities Mini-symposium for Continuing Medical Education Credit, Chicago, IL

2015 **Computational Analysis of Aflatoxin Accumulation in Maize Gene Expression;** Abstract presented at the Emerging Researchers National (ERN) Annual Conference, Washington *D.C.*

2013 **Analysis of Breast Cancer Cells Using Parallel Programming;** Abstract presented at The Association of Computer/Information Sciences and Engineering Departments at Minority Institutions (ADMI) Annual Conference, Virginia Beach, VA

**HONORS AND AWARDS**

2019 **Scholarship Recipient, Mathematical Science and Obesity Short Course,** Indiana University

2019 **Top 30 Selected for Russell Sage Foundation Summer Institute in Social-Science Genomics**

2019 **Early Career Forum Travel Award,** The Endocrine Society

2018 **AACR Minority Scholar in Cancer Research Award**, AACR-Minorities in Cancer Research Committee, American Association of Cancer Research (AACR)

2018 **Environmental Toxicology Scholarship**, Interdisciplinary Environmental Toxicology Program, University of Illinois at Urbana-Champaign (UIUC)

2018 **Selected for** **Purdue Intensive Summer Boot Camp for “Big Data Training for Translational Omics Research”**, Purdue University

2018 **Henry D. and Donna E. Strunk Award Merit Award**, Food Science and Human Nutrition Department, University of Illinois at Urbana-Champaign

2018 **Certificate of Recognition for Academic Excellence**, University of Illinois at Urbana-Champaign Graduate College

2018 **AACR-Bristol Myers Squibb Oncology Scholar-in-Training Award,** American Association of Cancer Research

2018 **Future Leaders Advancing Research in Endocrinology (FLARE) Fellowship,** Endocrine Society

2017 **Graduate Fellow Recognition (top 15% in the college),** UIUC, College of Agricultural, Consumer, and Environmental Sciences

2017 **Advancing Science Conference Grant,** National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE)

2017 **Early Career Cancer Health Disparities Scholarships,** Cancer Disparities Research Network

2017 **AACR Scholar-in-Training Award,** American Association of Cancer Research

2017 **Carl Storm Underrepresented Minority (CSURM) Fellowship,** Gordon Research Conferences

2017 **Endocrine Society Summer Research Fellowship**, Endocrine Society

2016 **Kraft Health and Wellness Fellowship,** University of Illinois at Urbana-Champaign

2014 **Graduate Teaching Assistantship,** Mississippi State University

2010 **National Science Foundation Historically Black Colleges and Universities Undergraduate Program (NSF HBCU-UP) Scholarship,** Mississippi Valley State University

**PROFESSIONAL MEMBERSHIPS**

2018 Bioinformatics Organization, Member

2018 American Medical Informatics Association (AMIA), Member

2018 Future Leaders Advancing Research in Endocrinology (FLARE), Alumni

2017 - Cancer Disparities Research Network (CDRN)

2017 - American Association of Cancer Research (AACR), Member

2017 - Delta Sigma Theta Sorority, Inc., Education Committee, Technology Committee

2017 - Endocrine Society, Committee of Diversity and Inclusion Intern

2016 - Champaign County Medical Reserves Corps

**TECHNICAL SKILLS**

Microsoft Office Suites (Word, Excel, and PowerPoint), Adobe (Reader and Illustrator), Bioinformatics Tools (Clustalw, Java Tree viewer, DAViD), and Intermediate programmer with experience in C++, Linux, FORTRAN, Mathematica, R, & SAS