

Brandi Patrice Smith

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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

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- 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