JaCoya Thompson

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EDUCATION

Ph.D.	Northwestern University, Computer Science	Mar 2023
	Dissertation: "Designing Technologies for Data Visualization Skill Development"	

Integrated Data Science Certificate, Northwestern University — Aug 2020

MS — Northwestern University, Earth & Planetary Science — Dec 2018
Thesis: "Relative contributions of celestial tidal forces and meteorological influences on Very-long Period Seismic Noise in the North-American Mid-continent."

MS — Fayetteville State University, Mathematics — July 2015
Thesis: "Mathematical modeling and computer simulations used to study the dynamics of cancer immunotherapy."

NC Teaching Licenses, NC State Board of Education — 2014-2016

BS — Fayetteville State University, Computer Science — Dec 2012
Cum Laude
Minored in Mathematics
Research: Predictive analysis of graduation and retention rates of STEM majors.

RESEARCH EXPERIENCE

Oakridge National Labs, Knoxville, TN — June 2021-Aug 2021
Department of Energy Research Intern
- Collaborated with team members in multiple federal departments to explore environmental & social relationships that contributed to positive COVID-19 cases in Chicago, IL.
- Built regression models using SPSS and Python to explain and examine the project goals.
- Participated in creative planning and brainstorming sessions to achieve project goals. Wrote and presented findings of the project results to various departments.

Invisible Institute's Citizen's Police Data Project, Evanston, IL — Sept 2019-Dec 2019
Researcher
- Researched how socio-demographic features such as race and ethnicity could play a role in police misconduct investigations.
- Analyzed data from the Citizens Police Data Project - Invisible Institute database using SQL and data analysis methods in python.

Northwestern University, Evanston, IL — Jan 2019-present
Researcher
- Designed web-based technologies to develop data visualization skills in novice users.
- Led the design of surveys and interview questions to measure user experience and tool satisfaction. Proposed recommendations and implemented changes to improve programs based on analysis and user/survey feedback.
- Collected data through the development of outreach programs. Managing 2-4 simultaneous projects at different stages of the research process to measure user experiences.
- Managed, planned, and facilitated programs that introduced individuals from various ages and socioeconomic backgrounds to STEM topics.
- Collaborated with academic departments, K-12 schools, non-profit organizations, and community-based partners to implement programs and achieve program goals. Coordinated and planned regular meetings with partners and participants of the program.
- Recruited participants, community, and academic partners to participate in programs through advertising and relationship building. Implement marketing and brand messages regarding programs, resources, and services.
- Trained and coached individuals on best practices to achieve program goals related to STEM education.
- Presented, reported, and published findings of programs to team members, partners, and education-focused conferences.
- Write and publish research papers in journals. Present research results in international venues through scientific posters, conference talks, panels, and symposiums. Translate research into grants for educational purposes.

Zooinverse, Evanston, IL   Aug 2018-Jun 2020
Citizen Science Project Researcher
- Collected, cleaned, studied, and analyzed user-submitted data to explore if citizens can help detect and classify dynamically triggered seismic activity.
- Trained a machine learning model to identify seismograms with earthquake signals and compared the accuracy to classifications made by citizens.
- Recruited community volunteers and maintained ongoing communication with volunteers about upcoming opportunities to provide project updates.

Northwestern University, Evanston, IL   Sept 2016-Dec 2018
Researcher
- Analyzed seismic data collected in the Mid-West US region to research non-seismic signals such as tidal weather and climate patterns' effects on seismic instruments.
- Analyzed large volumes of climate and seismic time-series data, using cross-correlations to measure signal strength and effects on seismic instruments.
- Built Python scripts to automate signals' measurement using various machine-learning techniques and statistical analysis methods.

National Science Foundation, Arlington, VA   May 2015-Aug 2015
Summer Research Intern
- Researched submitted proposals to identify measurable characteristics that will generate successful grants and define how those measurable characteristics correlate with funding success.
- Analyzed data using natural language processing methods with python.

Fayetteville State University, Fayetteville, NC   Dec 2013- Jul 2015
Researcher
- Exploring how mathematical modeling and computer simulations can be used to study the dynamics of cancer immunotherapy.
- Utilizing the cancer immunotherapy model to produce computational simulations in MATLAB that analyze the criteria for cancer persistence, total extinction, and temporal remission under therapeutic protocols.

NASA Langley, Hampton VA   June 2013-Aug 2013
Summer Research Intern
- Researched current techniques and technologies that aid in understanding large volumes of data.
- Analyzed researched finding to interpret and present results on significant data initiatives.

McNair Scholars Program, Fayetteville NC   Mar 2012-Dec 2012
Researcher
- Researched STEM majors' retention and graduation rates at Fayetteville State University.
- Analyzed data using statistical methodologies and tools to acquire information, interpret data, write results, and present findings.

WORK EXPERIENCE

LOTUS Chicago, Chicago IL   Sept 2022 – present
STEM Program Consultant
- Develop STEM programming for youth to build a pipeline into STEM fields and prepare them for college.
- Led planning and execution of curriculum and professional development training for STEM programming.
- Developed and validated survey questions to measure constructs such as participants' program experience and satisfaction.
- Compiled survey data into visual and written reports for external partners and stakeholders

MAPSCorps, Chicago, IL   May 2022–Present
Program Coordinator
- Led the design surveys to study participants' program experience and how they developed STEM skills aligned with program goals.
- Created, cleaned, and maintained collected data.
- Analyzed 500+ program participants to report on participants' program experience and performance using qualitative and quantitative methods.
- Process, analyze, and report on information to provide deeper insights and enable the organization to refine program budgets and forecasts.
- Recruited, interviewed, hired, and coordinated 100+ high school students' enrollment into a STEM-focused summer and after-school program. Managed programming logistics such as HR, payroll, and site assignments.
- Served as a liaison between various partners from community-based, high school, and local government organizations.
- Led planning and execution of STEM curriculum training, professional development programs, bi-annual symposiums, monthly STEM speaker series, and weekly STEM enrichment programs.
- Managed budgetary and fiscal management of programming needs, including hiring, site supplies, and reimbursements.
- Developed and taught computer and data science curriculum for the after-school program.

TutorProof, Chicago, IL   Apr 2020 - Aug 2022
Project Manager
- Planning and overseeing the implementation and deployment of a tutoring platform for K-12 students.
- Developed and validated survey questions and interviews to measure user experience and satisfaction constructs.
- Coordinated user testing before deployment of the platform and reported user testing feedback to stakeholders and the design team.
- Managed a monthly $100K development budget to ensure the platform's design goals were completed timely and within budget while keeping stakeholders informed.
- Facilitated bi-weekly meetings to keep all stakeholders and designers aware of the progress and timeline of the platform.

Fayetteville State Residence Life, Fayetteville, NC   Dec 2013- Jun 2015
Housing Manager
- Assist in the Office of Housing & Residence Life daily housing operations for college students.
- Assist with implementing room and building inspections; help determine students' accountability for damage; assess damage charges; process charges to student accounts.
- Provide presentations for the department and serve as a representative at conferences, admissions open house events, and other activities.

TEACHING EXPERIENCE

1-on-1 Research Instructor, Chicago IL   Jun 2020-present
College Impact/ViaX
- Taught various data science-related topics such as machine learning methods and graph analytics.
- Hold weekly meetings with undergraduate and high-school students to provide guidance and advice about research topics related to data science.

Shaw University, Raleigh NC   Jan 2020- Dec 2021
College Math Instructor
- Taught undergraduate mathematics courses averaging 30 students per semester, covering an introduction to college math and pre-calculus topics.
- Created lesson plans, assigned and corrected homework, and managed the classroom.

Northwestern University, Evanston, IL   Oct 2018 - Jun 2019
Center for Talent Development Teaching Assistant
- Designed a data science curriculum for youth using R programming.
- Executed the course, evaluated, and documented participants' progress.

NAACP, Naperville, IL   July 2018
Facilitator
- Facilitated the program with youth at NAACP camp using a coding platform TunePad, which created music using Python.

NC Public Schools, Raeford/Red Springs NC   Jan 2014- May 2016
Math Instructor
- Designed and implemented comprehensive lesson plans for grades 9-12th.
- Taught trigonometry, algebra, statistics, and probability. Taught students to apply the knowledge and skills required for College and Career Readiness per the NC Schools Framework and Common Core Curriculum.

Northwestern University, Evanston, IL   Jan 2020 – Mar 2020
Teaching Assistant, Computer Science Department
- Taught lectures and assisted the teacher in the computer science course instruction and curriculum.
- Led weekly meetings that provided feedback on the design of student projects for the HCI class.
- Graded coursework consisted of weekly readings, discussions, labs, and projects.

Fayetteville State University, Fayetteville NC   Jan. 2011 - May 2011
Teacher Assistant
- Attend lectures and assist the teacher in teaching students in the classroom.
- Schedule regular office hours to meet with students to provide computer science-related tutoring and homework assistance.

Fayetteville State University, Fayetteville, NC   Jan 2010 - Jul 2015
Math Tutor
- Provide individual and small group tutoring sessions for college math students as part of TRIO programs.
- Facilitate learning as a guide and coach to assist the student in becoming successful and independent learners.

COMMUNITY & OUTREACH SERVICE

College Admissions Process Program (#CAPsm)   Jun 2019- Jun 2022
Chair
- Led a team of 10-15 to develop programming to prepare high school juniors and seniors for college and guide them in life skills.
- Managed budgetary and fiscal management of programming needs, including supplies and reimbursements.

Sisters with Pearls Serving Society (SPSS)   Jan 2014-present
Board Member
- Educational advancement for Robeson and Columbus County communities.

STEM Education Programs   Sept 2016-present
Mentor & Facilitator
- **Data Diamonds:** Designed and implemented 5 sessions on data analytics for 6-8th grade girls using various data visualization tools.
- **Sports Sense:** In collaboration with community-based programs such as Digital Divas and local school districts, a STEM curriculum is developed and implemented to introduce youth to experiences related to wearable devices and physical movement.
- **CT-STEM:** Designed and implemented lessons, using Jupyter Notebooks, in python for a 2-week unit in AP Statistics class.
- **HerStory:** an outreach event for young females who are curious about science.
- **Ryerson Seismology backpack:** a seismology-themed backpack filled with activities for families with children at the welcome center at a local community park.
- **Earthquake Detective Adler Planetarium:** engaged individuals in an experiment to test if human ears can replace the process of a professional seismologist in identifying dynamically triggered seismic events.

Women in STEM Initiative   2021
Speaker
- Presented to high school girls.

HBCU School Incentives   2020-present
Committee Member/Speaker
- Plan programs that promote and introduce various HBCUs to high schoolers.

Science with Seniors   2020
Speaker
- Presented my research to residents in a nursing home.

National Science Foundation   2020
SSIP Mentor
- Weekly meetings with undergraduate interns are a part of NSF's Summer Scholars Internship Program.
- Provided guidance and feedback to an undergraduate in STEM.

Buds of Promis   2011-2015
Founder, Mentor
- Coordinated activities and mentored girls ages 10-15
- Assist mentees with setting goals to achieve academic and personal success.

SKILLS & OTHER

Python, D3, R, SPSS, SQL, HTML, MATLAB, Tableau, Power BI, Excel, Google Sheets, Microsoft Access, Generic Mapping Tools (GMT), ArcGIS, Neo4j, Spark+AI, GraphX, Microsoft Office, Google Applications, Video Conferencing Tools, Project Management Tools

PUBLICATIONS

Journal Publications

JC Thompson & GA Irgens (2022) Data Detectives: A Data Science Program for Middle-Grade Learners, Journal of Statistics and Data Science Education, DOI: 10.1080/26939169.2022.2034489

Jones, S. T., **JC Thompson,** & Worsley, M. (2020). "Data in Motion: Sports as a site for expansive learning." Computer Science Education, 1-34.

V Tang, B Rösler, J Nelson, **JC Thompson**, A Lucas, S van der Lee. (2020). "Earthquake Detective: Engaging Citizens in the Detection of Dynamically Triggered Seismic Events." Earth and Space Science Open Archive

M Perez, S Jones, **JC Thompson**, M Worsley. (2019). "Data in motion: supporting youth interest in athletics through multimodal data analytics." XRDS: Crossroads, The ACM Magazine for Students 25 (4), 50-53

JC Thompson, Wu, S., & Mills, J. (2020, June). "The Use of Computer Programming in a Secondary Mathematics Class".2020 virtual ASEE Annual Conference & Exposition. https://peer.asee.org/35378

G. A. Irgens & **JC Thompson**. (2020). "Would You Rather Have it be Accurate or Diverse?" How Male Middle-School Students Make Sense of Algorithm Bias. 14th International Conference of the Learning Sciences (ICLS) 2020, Volume 2 (pp. 751-752). Nashville, Tennessee: International Society of the Learning Sciences. Poster Presentation

JC Thompson, Van Der Lee S, Horton D. "Analysis of Very Long-Period Noise at Flexible-Array Stations in the North-American Midcontinent." AGU 2018 Fall Meeting. Poster Presentation

Price, Jeremiah, **JC Thompson,** Abdullah. (2023) Out-of-school STEM Learning: Youth-Driven, Applied Data Science Addressing Needs in Their Own Communities. To be presented at the Annual Meeting of the American Education Research Association Conference 2023.

JC Thompson. "Using Python in an Advanced Placement Statistics Class." eCots 2020 virtual conference. causeweb.org/cause/ecots/ecots20/posters/1-10

Jones, S., **JC Thompson**., Perez, M., Smith, M., Anderson, K. and Worsley, M. (2020). So it's like 2K, right?': Technological Supports in the Design of an Athletic Program. Presented at the Annual Meeting of the American Education Research Association Conference 2020.

JC Thompson. "Sports Analytics: Learning Data Analytics through Wearable Technologies and Sports." CRA 2019 URMD Workshop

JC Thompson., Gillespie, P. "A Predictive Analysis on the Graduation and Retention Rates in Science, Technology, Engineering and Mathematics at Fayetteville State University." (2015).NAAAS Conference. Baton Rouge, LA. Poster Presentation

JC Thompson., Gillespie, P. " An Analysis of Graduation and Retention Rates in Science, Technology, Engineering and Mathematics (STEM) majors at Fayetteville State University" (2013). North Carolina A&T. 2013 NCLSAMP Conference. Poster Presentation *(Honorable Mention)*

JC Thompson., Gillespie, P. "A Predictive Analysis on the Graduation and Retention Rates in Science, Technology, Engineering and Mathematics at Fayetteville State University" (2012). Duke University. Undergraduate Research Conference. Poster Presentation

HONORS AND AWARDS

Black Compute Her Fellow 2021
Cohort-based leadership development program designed to cultivate Black women leaders in computing.
GEM University Fellow 2016, 2021
Provided practical data science summer research experience through an employer sponsor Oakridge National Labs. Provided tuition, fees, and a stipend for the academic year.
IDEAS Fellow 2018, 2019, 2020
Provided tuition, fees, and a stipend for the academic year.
Quality Education for Minorities Network Summer Scholar 2015
Summer research experience at the National Science Foundation to become familiar with NSF programs and strategies to address issues related to under-representation in STEM.
HBCU Master's Degree STEM Scholar 2013-2015
Provided funding for tuition and fees for the academic year.
Math Tutor of the Year 2013
Walter/Cabey Fund Community Service Grant 2012
Awarded $500 to support Buds of Promis program
Ronald E McNair Post Baccalaureate Achievement Scholar 2010-2012
Participated in research and other scholarly activities in preparation for applying to doctoral studies
Tau Sigma Honor Society 2009

PROFESSIONAL AFFILIATIONS

CS PhD Advisory Council (CSPAC), 2020-2022
Computer Science Social Initiative, 2020-2021
NUCS Diversity Committee (student member), 2020-2022
American Educational Research Association, 2020-present
American Society for Engineering Education, 2019-present
American Geophysical Union (AGU), 2018-2021
Northwestern Graduate Schools Parental Advisory Board, 2017-2022
Women in Mathematics, Vice President, 2012-2015
Association for Computing Machinery (ACM), 2011-present

PROFESSIONAL SERVICE

Lighten Talks Moderator
NSF Research Traineeship (NRT), Annual Meeting, 2019
Panel/Session Moderator
Fayetteville State Undergraduate Research Conference, 2013-2015
Peer-Reviewed Articles for:
- SIGCSE Technical Symposium 2019, 2020, 2021, 2022
- American Society for Engineering Education Conference 2019, 2021

PROFESSIONAL TRAINING

Grad Cohort for Women Workshop Computing Research Association, Virtual, April 23-24, 2021
Two days networking with senior women computing researchers and professionals.
2021 NSF RESET Conference Virtual, March 4-6, 2021
Ways to support the re-entry of women in STEM.
Focus Visualization workshop Northwestern University, Virtual, Jan 19 - Feb. 1, 2021
Develop technical skills in programming and scientific visualization integrated with a research focus.
NextProf Nexus University of Michigan, Virtual, September 9-1, 2020
A three-day program to strengthen and diversify the next generation of academic leaders.
The Critical Constructionism Workshop Evanston IL, September 20, 2019
Develop methods and networking in learning science
Grad Cohort for URMD Workshop Computing Research Association, Hawaii, March 21-22, 2019
Two days are networking with senior computing researchers and professionals.