

# CURRICULUM VITAE

## JESSIE J WALKER

### EDUCATION

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2004	University of Iowa	<i>Ph.D. Computer and Information Science</i>
2000	University of Arkansas at Pine Bluff	<i>B.S. Computer Science</i>

### EMPLOYMENT

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2019-present	CEO/Founder,	STEM Resources LLC - <i>Little Rock, AR</i>
2022-present.	Computational Engineer ,	Washington University in St. Louis
2011-present.	Adjunct Faculty (Computer Science & Cybersecurity),	Southern New Hampshire University – Remote
2018-2021	Senior Associate Director of Academic Affairs/ Research & Analytics,	<i>Arkansas Dept of Higher of Education-Little Rock, AR</i>
2016-2018	Associate Dean/Chair/Professor, Electrical, Computer Engineering, & Computer Science	<i>Jackson State University – Jackson, MS</i>
2016-2018	Grad Coordinator, Ph.D. Data Science	<i>Jackson State University – Jackson, MS</i>
2013-2016	Chair, Computer Science/Mathematics	<i>University of Ark at Pine Bluff–Pine Bluff, AR</i>
2013-2016	Professor of Computer Science	<i>University of Ark at Pine Bluff–Pine Bluff, AR</i>
2008- 2012	Associate Professor of Computer Science.	<i>University of Ark at Pine Bluff–Pine Bluff, AR</i>
2004-2008	Assistant Professor of Computer Science	<i>University of Ark at Pine Bluff–Pine Bluff, AR</i>
1997-2004	Senior Airman in Supply Logistics & Procurement	<i>United States Air Force Reserve</i>

### KEY ACCOMPLISHMENTS / ACTIVITIES AS COMPUTATIONAL ENGINEER – WASHINGTON UNIVERSITY IN ST. LOUIS

- Develop and optimize computational algorithms for research projects.
- Design, implement, and maintain software applications for academic and scientific needs.
- Collaborate with interdisciplinary teams to enhance data analysis and visualization capabilities.

### KEY ACCOMPLISHMENTS / ACTIVITIES AS ADJUNCT FACULTY – SOUTHERN NEW HAMPSHIRE UNIVERSITY

- Taught over 60 course sections across undergraduate and graduate programs in Computer Science, Cybersecurity, and Software Engineering.
- Delivered high-quality instruction in asynchronous, fully online environments, supporting a diverse population of adult learners, military veterans, and non-traditional students.
- Developed student-centered feedback practices and adaptive instructional techniques to accommodate varied learning styles and improve student outcomes in technical courses.

### KEY ACCOMPLISHMENTS / ACTIVITIES AS SENIOR ASSOCIATE DIRECTOR – ARKANSAS DEPARTMENT OF HIGHER EDUCATION

- Established **Statewide Reverse Transfer System, hosted by the National Student Clearinghouse** that provides a statewide system to enable students within Arkansas to

transfer of credits from a four-year institution to any two-year institution from which a student transferred.

- Expanded the **Arkansas College Transfer System (ACTS)**, to encompass wider state impact within the state to facilitate **statewide transfer and articulation** between public institutions within state.
- Provide support to Arkansas institutions in implementing **state master plan** for higher education within Arkansas.
- Manage academic requests from institutions to **add, revise, or delete academic programs**; review requests for **changes in the role and scope (mission)** of each public college and university;
- Assisted in **securing 1.4 million** in funding to support Arkansas colleges and universities in the next phase of math pathways work- so that underprepared students can be directly enrolled in a college level math course with co-requisite instructional support provided to meet these student's remedial needs

#### KEY ACCOMPLISHMENTS / ACTIVITIES AS ASSOCIATE DEAN/CHAIR /GRADUATE COORDINATOR –JACKSON STATE UNIVERSITY

- Freshman Computer Science, Engineering class size increased by nearly 30% with nearly 100 point increase in SAT scores, improved selectivity and increased yield simultaneously
- Established **New Interdisciplinary Graduate Program in Computer Science**, offering new M.S. programs and supporting undergraduate minors, and each in partnership with the College of Arts and Sciences.
- **Restructured the Department Curriculum** from a traditional 4 undergraduate degree program, master program into a combine **3+1 program (BS+MS program)**. Only such program in the state of Mississippi.
- Created **high-school, and junior-high school dual enrollment** program within Computer Science/Engineering as guiding principal of our Departmental Strategic Vision.
- Developed research center funded by **Department of Defense Centers for Academic Excellence in Global Cyber Intelligence (IC-CAE: GCI)** to partner with industry and transform Computer Science/Engineering cybersecurity training and introduce Computer Science/Engineering students to the technologies and process of going from product design-to-deployment in cybersecurity (funding pending).
- Spearheaded the transformation of a **new interdisciplinary Ph.D. program in Data Sciences** achieving incoming enrollments of nearly 89 new students per year and approximately **\$8-10 Million of new income** for the University.
- Created new **Interdisciplinary Masters Specializations in Data Analytics, Cybersecurity, Computer Science Education, Engineering Education (Robotics) and Bioinformatics** each accessible from existing Master's degree programs in Computer Science/Engineering.
- Developed new Departmental partnerships with industry; **Amazon AWS, Dell EMC, MasterCard, IBM, and Oracle Academy**.
- Catalyzed new initiative with industry partners around integrating **industry certifications** into both undergraduate and graduate curriculum within Computer Science/Engineering.

- Develop Departmental assessment guidelines and standards to match **ABET accreditation standards**, resulted in Electrical Engineering achieving accreditation for the first-time in fall 2017.

#### MAJOR ACCOMPLISHMENTS AS CHAIR OF MATHEMATICS AND COMPUTER SCIENCE AT UNI OF ARKANSAS AT PINE BLUFF

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- Developed a **Professional Master's Degree in Computer Science & Technology**, one of only two in the state of Arkansas (**one-year graduate program**)
  - Principal Investigator and chief architect of **\$7.3 million dollars in external funding** for the

##### Department of Computer Science

- Developed and implement a Department of Defense funded **High-Performance Computing and Visualization Center** for the University of Arkansas at Pine Bluff
- Developed and implemented one of only two **ScienceDMZs** within Arkansas funded by the National Science Foundation (NSF) at the University of Arkansas at Pine Bluff.
- Implemented communal learning/research labs for interdisciplinary research, teaching within cyberinfrastructure
- Development of an **online Computer Science program** in partnership with **Oracle Academy**.
- Increased primary faculty from 10 – 18, creating one of the largest Computer Science departments in Arkansas.
- Develop the **first High-School Computer Science curriculum in Arkansas** with White Hall

##### High/Jefferson County

#### PROFESSIONAL & EDUCATION HONORS

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- Arkansas Research Alliance Fellow (2015-2017) (First African-American)
  - Department of Homeland Security (DHS) Fellow (2009-2010) STEM Fellow, University of Ark at Pine Bluff (2008) Graduate Fellow, University of Iowa (2004-2006)
  - Certification: CISCO: CCNA, CCNA Security, Microsoft Technology Associate, Microsoft Certified Solutions Associate
  - Doctoral Scholar, University of Iowa (2002-2004)
  - Ronald McNair Scholar, University of Ark at Pine Bluff (1999-2001) TRIO Scholar of the year (2000-2001)
  - U.S. Achievement Academy Award (Computer Science) (2000)

#### PUBLICATION SUMMARY

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- Peer reviewed journal articles or book chapters published, in press, or submitted: Google Scholar Link <https://scholar.google.com/citations?user=6fu-Pv8AAAAJ&hl=en>

Books:

- A Weighting Scheme for Security Patterns Using Mobile Agents, 2008 (ISBN: 9783639068993)

#### Book Chapters:

- Book Title: Emergency Management, 2012, Chapter Title: Cyber Security Concerns for Emergency Management (ISBN:979-953-307-417-6)

#### Papers:

- A Study of COVID-19 Information Behaviors among Black Americans, Brenton J Stewart, Boryung Ju, **Jessie J Walker**, Proceedings of the Association for Information Science, 2023, 388-395
- Deep Learning Models for Opinion Mining Analysis, S Cheikh, **JJ Walker**, D Lydia, B Ilyas - 2023 3rd International Conference on Electrical 2023
- Solving Task Scheduling Problem in the Cloud Using a Hybrid Particle Swarm Optimization Approach, S Cheikh, **JJ Walker**, Journal of Applied Metaheuristic Computing (IJAMC), 2022
- Data intensive scalable infrastructure for data-driven research: Big data and warehouse architecture,  
**J Walker**, L Rock, L Vieira - SoutheastCon 2018
- Developing a Crisis Informatics Ecosystem for Smart Cities: Geosciences and Remote Sensing  
**J Walker**, L Rock, C Ramos, B Stewart - SoutheastCon 2018
- Data engineering 2.0 and United States workforce: Social implications of technology  
**J Walker**, L Rock, N Harris - SoutheastCon 2018
- Build it and they will come? Patron engagement via Twitter at historically black college and university libraries, B Stewart, **J Walker** - The Journal of Academic Librarianship, 2018
- Hybrid Knowledge Mining Ecosystem, Robin Ghosh, Nicholas Gonzalez, **Jessie Walker**, Ciji Ramos, Amanuel Gebre and Mohiuddin Hasan, MEDES '17 Proceedings of the 9th International Conference on Management of computational and collective intelligence in Digital Ecosystems , October 25 - 29, 2017
- Build It and They Will Come? Patron Engagement Via Twitter at Historically Black College and University Libraries, B. Stewart, **J. Walker**, The Journal of Academic Librarianship, 2017
- Open source cloud management platforms and hypervisor technologies: A review and comparison D Freet, R Agrawal, **JJ Walker**, Y Badr, SoutheastCon, 2016, 1-8
- Historically black colleges and university libraries' utilization of Twitter for patron engagement: an exploratory study, B Stewart, **J Walker**, IConference 2016 Proceedings
- Cloud forensics challenges from a service model standpoint: IaaS, PaaS and SaaS, David Freet, Rajeev Agrawal, Sherin John, **Jessie Walker**, MEDES '15 Proceedings of the 7th International Conference on Management of computational and collective intelligence in Digital Ecosystems , October 25 - 29, 2015, Caraguatatuba, Brazil
- A Layer Based Architecture for Provenance in Big Data, Rejeev Agrawal, Ashiq Imran, Cameron Seay, **Jessie Walker**, 2015 IEEE International Conference on Big Data, October 27-30, 2015

- Forensics portal to the cloud - Hypervisor,” Curtis Jackson, **Walker, Jessie**, Rajeev Agrawal, 2nd International IBM Cloud Academy conference (ICACON), May 8-9, 2014, Atlanta, Georgia, USA.
- **Walker J. J**, Mortazav, M, Samar S, “E-Learning using Cyberinfrastructure”, International Journal of Emerging Technologies in Learning, Vol. 7, No. 2, June 2013
- **Walker J. J**, Mortazav, M, Samar S, “e-Learning using Cyberinfrastructure for HBCUs”, Association of History, Literature, Science and Technology Conference (AHLiST), Houston, USA, May 2011
- **Walker J. J**, Mortazav, M, Blount, R, Jones, T. “Cyber Security Concerns for Ubiquitous/Pervasive Computing Environments”, International Conference on Cyber-enabled distributed computing and knowledge discovery (Cyber-C) Beijing China, October, 2011
- **Walker J. J**, Aydin, K Blount, R, Jones, T. “Intrusion Detection for Ubiquitous & Pervasive Environments using Plan Recognition” 3rd International Conference on Emerging Ubiquitous Systems and Pervasive Networks (EUSPN), Amman, Jordan, October, 2011
- **Walker J.J**, Blount, R, Jones, T, “Visualization, Modeling and Predictive Analysis of cyber security attacks against cyber infrastructure-oriented system” IEEE International Conference on Technologies for Homeland Security, Waltham, Massachusetts, USA, November 2011
- **Walker J.J**, Mcelwee S, “Watermarking the Cloud”, Annual International Conference on Computer Science and Information Systems, Athens, Greece, June 2011
- **Walker J.J**, Williams B.J, Skelton, G.W, “Cyber Security for Emergency Management” 2010 IEEE International Conference on Technologies for Homeland Security, Waltham, Massachusetts, USA, October 2010
- **Walker J.J.**, Quantitative Analysis of Security Patterns for Network Systems using Distributed Agent, Association of Computer/Information Sciences and Engineering Departments at Minority Institutions (ADMI), Jackson, Mississippi, USA, April 2010
- Smith, K., West, T., **Walker J.J**, Identification of Security Patterns within Highly Available Computing for Space, Association of Computer/Information Sciences and Engineering Departments at Minority Institutions (ADMI), Jackson, Mississippi, USA, April 2010
- Williams, A.B., Touretzky, D.S., Manning, L., **Walker, J.J.**, Boonthum, C., Forbes, J., and Doswell, J.T. (2008) The ARTSI Alliance: Recruiting Underrepresented Students to Computer Science and Robotics to Improve Society. The Association for the Advancement of Artificial Intelligence (AAAI-2008) Spring Symposia
- **Walker. J**, Exploring Artificial Intelligence in the New Millennium, edit by Gerhard Lakemeyer and Bernhard Nebel, published by Morgan Kaufmann, Book Review, Journal of the American Society for Information Science and Technology, December 2003.
- House. J. and **Walker. J.**, “Software Agent Language Development Comparison”. Paper presented at Thirteenth Annual Student/Faculty Research Forum University of Arkansas Pine Bluff, March 2000.

- Khular. G. and **Walker. J.** “African-Americans & Computer Ownership Among College Students in Arkansas.” Paper presented at Tenth Annual Student/Faculty Research Forum University of Arkansas at Pine Bluff, March 1997.

## MAJOR RESEARCH AREAS

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- Advanced application of plan-recognition cybersecurity issues within diverse environments.
  - Development of novel measurement, monitoring and processing techniques that provide new insights into intrusion detection.
  - Advancing new paradigms and technologies for mechanical on fundamental cybersecurity, security analytics principals around data acquisition, and exploration so as to improve cybersecurity applications.
  - Development of novel devices which implement synergies between cognitive computing and cybersecurity techniques, particularly wearable devices.

## ADVISORY BOARDS

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2014-Present	Computing Education Challenges facing America’s Community Colleges NSF Funded (#0901159)
2010-2015	Advisory Board Member –Tech/ Arkansas Research and Educational Optical Network (AREON)
2012-2015	National Science Foundation: Advisory Board: Seeding the Next Generation Cyberinfrastructure Ecosystem
2008-2014	University of Arkansas System Committee Member Distance Learning Task Force
2010-Present -	Scientific Advisory Board/Mentor, The National Alliance for Doctoral Studies in the Mathematical Sciences, University of Iowa,

## SELECTED FUNDING HISTORY AS PRINCIPAL INVESTIGATOR

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- CC\*DNI Campus Design: Developing a Scientific Research Network to Support Data-Driven Research at the University of Arkansas at Pine Bluff, National Science Foundation (NSF), Award \$281,488.00, (Date: 2015-2017), University of Arkansas at Pine Bluff (2009-2012), PI: Jessie Walker, Award# 1541456
  - Mathematics STEM Undergraduate Apprentice Program (MSTEM-UAP), Department of Education (DOE)/ Minority Science and Engineering Improvement Program (MSEIP), Award: \$530,000.00, (2014-2017), PI: Jessie Walker, Award#P120A150078
  - Engineering Intrusion Detection and Prevention Services for Hypervisor Cloud Computing Infrastructures (EIDP-HCCI), Award \$324,071.00, (Date: 2015-2017), University of Arkansas at Pine Bluff (2009-2012), PI: Jessie Walker, Award# 144941
  - Arkansas High Performance Computational, (SuperComputer), AHPC, Department of Defense(DOD), Award: \$128,628.00, (Date: 2012-2013) University of Arkansas at Pine Bluff, PI: Jessie Walker, Award#W911NF-12-1-0414
  - Automatic Intrusion Detection and Response for Cyberinfrastructure-oriented Environments (AIDRCOE), Department of Defense (DOD), Award: \$351,873.00, (Date:2010-2014) University of Arkansas at Pine Bluff, (2011-2014) PI Jessie J Walker, Award# W911NF-11-1-0164

- Arkansas Cyber Security Community of Practice (ACS-CP), Department of Homeland Security (DHS), Award: \$487,613.00, (Date: 2010-2015) PI: Jessie J Walker, Award#ST-062-000036
- Southern Arkansas Information Assurance (SAIA) Department of Defense (DOD)/National Security Agency (NSA), Award: \$55,678.00, (Date:2009-2010) University of Arkansas at Pine Bluff, PI: Jessie J Walker, Award#H98230-10-1-0389
- Automatic Intrusion Detection and Response system for Cyberinfrastructure-Oriented Systems (AIDR-COS) National Science Foundation (NSF), Award:\$149,910.00, (Date: 2010-2013) University of Arkansas at Pine Bluff PI:Jessie J Walker, Award #1063831
- Cyberinfrastructure for Transformational Scientific Discovery in Arkansas and West Virginia (CI-Train) NSF:EPSCoR:(RII-Track-I), Award: \$6 Mil University of Arkansas at Pine Bluff Award:\$448,181, (Date: 2009-2012) PI: Jessie J. Walker, Award # 0918970
- ARTSI: Advancing Robotics Technology for Social Impact, NSF Broadening Participation in Computing Alliance, \$2Mil, University Arkansas Pine Bluff , Award \$63,031, (2008-2010) PI:Jessie Walker, Award# 0742252
- Graduate Education Enhancement Program, Department of Education (DOE), Award: \$3 Mil, University of Arkansas at Pine Bluff, (Date:2010-2015), Co-PI/Project Coordinator: Jessie J. Walker, Award #0918970
- Demonstration Project: Arkansas Minority Cyberinfrastructure Training, Education Consortium (AMC-TEC), National Science Foundation (NSF), Award:\$231,743.00 University of Arkansas at Pine Bluff (2010-2012) PI:Jessie J Walker, Award #1041420
- Context-based Computer Science using Tablets, HP Technology for Teaching Higher Education, Award \$77, 000.00 (2008-2010) PI:Jessie Walker
- Stream Computing for Research and Education in Science and Engineering, Computing Research Infrastructure (CRI: IIE), National Science Foundation (NSF), Award \$531,017.00, (Date:20082009), University of Arkansas at Pine Bluff (2009-2012), Senior Personnel: Jessie Walker, Award#0855248
- PHAC – P2P Based Highly Available Computing for Space Networks, National Aeronautics and Space Administration (NASA), Award: \$15,000, (2009-2010), Co-PI: Jessie Walker Award# CNS0619069.
- Stream Computing for Research and Education in Science and Engineering, Computing Research Infrastructure (CRI: IIE), National Science Foundation (NSF), Award \$531,017.00 University of Arkansas at Pine Bluff (2009-2012), Senior Personnel: Jessie Walker, Award# 0855248

**Total External Research/Educational/Industry Funding: \$10,345,605**

#### SELECTED PROGRAM/CURRICULUM DEVELOPMENT

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##### **University of Arkansas at Pine Bluff**

###### **Undergraduate Curriculum:**

- CPSC 3345 AI (Artificial Intelligence)
- CPSC 3346 Bioinformatics-Created
- CPSC 4354 Computational Science
- 057:148 Statistical Methods
- CPSC 2300 Computer Science I (CSI)

- CPSC 2301 Computer Science II (CSII)
- CPSC 3300 Software Engineering
- MATH 1310 Elementary Algebra
- CPSC 4389 Operating Systems
- CPSC 3362 Programming Language-JAVA
- CPSC 4221 Computer Science Seminar
- CPSC 2251 Computer Organ/Programming-Assembly
- CSIT 3310 Computer Science Technology I (CST I)
- CSIT 3320 Computer Science Technology II (CST II)
- CSIT 4310 Network Forensics
- CPSC 4394 Database Management
- CPSC 2344 Networking
- CPSC 2322 Special Topic/Visual Basic

**Minors:**

- Bioinformatics
- Statistics
- Data Engineering

**Graduate Program:**

Develop a 30-hour Graduate Degree: M.S. Computer Science & Technology GCST

- 5320 Project Management & Managing Operations
- GCST 5331 Software Engineering 3
- Credits GCST 5344 Networking & Security
- GCST 5345 Programming Concepts
- GCST 5394 Advanced Database Systems
- GCST 5389 Distributed Systems
- GCST 5356 Intelligence Systems
- GCST 5300 Technology Internship
- GCST 6V00 Thesis
- GCST 6V01 Project

**Jackson State University:**

Undergraduate Curriculum:

- CSC 119 Computer Science II
- CSC 215 Data Analytics
- CSC 228 Data Structures and Algorithms
- CSC 330 (3 credits): Database Systems
- CSC 235 Security Awareness
- CSC 335 Computer Forensics
- CSC 435 Computer Networks
- CSC 437 Computer Security • CSC 452 Systems Simulation.
- CSC 460 Introduction to Artificial Intelligence
- CSC 118 Fundamental of Computer Science

**Minors:**



- Data Science
- Cybersecurity
- Computer Science Education

### **Graduate Program:**

Implemented a 72-hour Graduate Degree: Computational and Data-Enabled Science & Engineering/Data Science

- CSC 511 Parallel and Distributed Computing
- CSC 571 Programming for Big Data
- CSC 621 Machine Learning
- CSC 641 Network Science

### **Elective Courses:**

- CSC 537 Cloud Computing
- CSC 562 Artificial Neural Networks
- CSC 573 Modeling and Simulation of Complex Systems
- CSC 582 Social Network Analysis
- CSC 630 Computability and Complexity
- CSC 634 Big Data Mining
- CSC 635 Big Data for Cyber Security
- CSC 653 Large-Scale Computing
- CSC 661 Software Engineering for Computational Applications
- CSC 663 High Performance Scientific Computing

### PROFESSIONAL ORGANIZATIONS

- ACM Special Interest Group on Computers and Society (SIGCAS)
- ACM Special Interest Group on Computer Science Education (SIGCSE)
- ACM Special Interest Group on Security, Audit and Control (SIGSAC)
- ACM Special Interest Group on Computer-Human Interaction (SIGCHI)
- IEEE Computer Security

### PROFESSIONAL SERVICE

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- **Undergraduate Mentoring:** In the last 6 years, I have development, summer programs for undergraduate students at the University of Arkansas at Pine Bluff, including a summer SuperComputing Boot Camp hosted at the University of Arkansas at Fayetteville HPC Center 6 undergraduates, CyberSecurity Summer Camp hosted at the University of Arkansas at Little Rock, 4 undergraduates, Cloud Computing Forensics Camp, 5 undergraduate, 4 high-school students.
  - **Curriculum Development:** Developed undergraduate and graduate, team-taught courses between Computer Science, Biology departments respectively in Bioinformatics. As well as Big Data team-taught courses in Data Analytics, Computational Sciences, between the departments Biology, Physics, Chemistry, and Computer Science. Developed a professional

graduate Master's program in Computer Science and Technology, one of only two within the state of Arkansas.

- **Graduate Advising:** Have mentored 30 graduate students (23 graduated; 7 current), including 4 recipients of the Dept of Edu Enrichment awards funding, also developed and hosted postdoctoral program within Computer Science, his work in data/security analytics in the laboratory, resulted in tenure-track position offer.
- **K-16 Training:** Developed and implement training program for K-16 students, educators as part of the University of Arkansas at Pine Bluff, STEM Academy, Saturday Academy program, in which I and 2 graduate, 2 undergraduate students developed educational materials training faculty how to utilize Apple products for the classroom include IBook Author, Ipads. In addition, trained K-12 students in mobile application development.
- **Outreach:** Developed a computational science training program for minority institutions within Arkansas, Arkansas Minority Cyberinfrastructure Training, Education Consortium (AMCTEC), Alliance Faculty Mentor, The National Alliance For Doctoral Studies in the Mathematical Sciences, University of Iowa, 2007-present, STEM Academy Advisory Board Member, University of Arkansas at Pine Bluff, 2007-2016