JASMINE BERRY, PhD

Neuro-AI Research Scientist
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EDUCATION

University of Southern California, Los Angeles, CA 2020
Doctor of Philosophy (Ph.D.), Computer Science
Dissertation: Sensory Acquisition for Emergent Body Representations in Neuro-Robotic Systems
Advisors: Francisco Valero-Cuevas, Alice Parker

University of Southern California, Los Angeles, CA December 2016
Master of Science (M.S.), Computer Science

Norfolk State University, Norfolk, VA May 2012
Bachelors of Science (B.S.), Computer Science – Engineering (*Summa Cum Laude*)
Minor in Mathematics

RELEVANT SKILLS

- Python
- C++/Java
- MATLAB
- Verilog/VHDL
- Web Dev: HTML, CSS, JavaScript
- Data Modeling, Visualization, & Analytics
- Quantitative Reports
- Neural Simulation Learning
- Technical Writing and Communication
- Literature Reviews
- Research & Survey Design
- Software Engineering

PROFESSIONAL EXPERIENCE

Research Fellow and Postdoctoral Scholar, University of Michigan
Ann Arbor, MI
January 2022 – present

- NSF, CCC Computing Innovations Research Fellow (CIFellow) in Laboratory for Progress
- Researching and developing novel algorithmic approaches for social collaborative robotic systems in multi-agent environments.

Lead Data Scientist, Intake Health
Los Angeles, CA
August 2021 – January 2022

- Maintained software technology standards and compliance regulations for precision health diagnostics.
- Deployed IoT nodes via Amazon Web Services to collect patient date for hundreds of patients
- Conducted predictive analytics of customer data to enhance performance of ML classification algorithms for detecting physiological biomarkers.

Technical Lead, Harexi Health
Los Angeles, CA
August 2017 – August 2020

- Identify technical opportunities and risks for mobile (Android) and web-based (Firebase) platforms.
- Manage several teams totaling over 10 frond-end and back-end developers.
- Maintain current information about technology standards and compliance regulations for precision health diagnostics in Diabetic and chronically-ill patients.
- Monitor social, scientific trends for benchmarking system's performance in clinical trials and research studies.

AI Engineer-In-Residence, West Coast Consortium for Technology & Innovation in Pediatrics (CTIP)
Los Angeles, CA
May 2020 – May 2021

- Facilitate the development, production, and distribution of pediatric medical devices.
- Advise Medical Technology startups within the CTIP portfolio on product design, strategic and competitive criteria.
- Verify technology intervention points that can be leveraged for competitive advantages.

Quality and Reliability Engineer, Intel Corporation, Intel Architecture Group A (IDGA)
Folsom, CA
May 2012 - August 2012

- Performed empirical data lab collection and Quality and Reliability (Q&R) analyses on smartphone and tablet systems using Matrix, TAT, and Kratos tools.
- Assisted in formerly defining a tablet use-model for completion of Q&R Goals and Use-Conditions Whitepaper.
- Researched use-model studies of mobile devices for the development of future generation devices.
- Designed experiments for statistical analysis and reliability statistics to ensure equipment requirements met inspection specifications and standardized qualifications.

Technical Assistant, National Reconnaissance Office, Norfolk State University Information Assurance Center
Norfolk, VA
August 2010 - May 2012

Project: Implantable Wireless Sensor Networks: Human Body as a Communications Medium

- Researched relevant implementation solutions in the field of sensor nodes.
- Proposed a general framework for sensor networks in medical and disease condition monitoring.
- Designed hardware and software architecture (routing protocols) and communication methods of various networking nodes (i.e., Imote2 and MicaZ).

Intrusion Analyst, Lockheed Martin Corporation, Computer Incident Response Team (LM-CIRT)
Gaithersburg, MD
May 2010 - August 2010

- Analyzed and process hundreds of intrusion related alerts from both commercial off-the-shelf (COTS) and custom sensors, updating standard operating instructions (SOI) as required.
- Performed peer reviews of incident reports and email attack trends for completeness and accuracy.
- Supported enterprise response activities through command line log analysis and investigated targeted malicious email to aid in enterprise security education initiatives.

Software Engineer, National Security Agency, Tools and Techniques Division
Ft. Meade, MD
May 2009 - August 2009

- TS/SI/TK security clearance
- Lead developer and programmer for the first Global Tipping Management Tracking System.
- Develop and tailored existing code of the full-stack web application to exact specifications for new team capabilities.
- Arranged troubleshooting for 3 system deficiencies.
- Routinely interfaced system features with requests of the sponsor, program manager, and end-users on technical and operational aspects of the tracking system.

RESEARCH EXPERIENCE

Research Assistant, Brain-Body Dynamics Lab, University of Southern California
Los Angeles, CA
August 2016 - August 2020
Advisor: Dr. Francisco Valero-Cuevas

Project: Computational analysis of sensory modalities in neuromuscular dynamics

- Publish science articles on neural network learning of sensory modalities in bio-inspired robotic systems.
- Design sensory learning methods based on neural physiology for robotic agent locomotion using D3.js data visualization, Python libraries, and machine learning.

Research Assistant, Biomimetic Real-Time Cortex (BioRC) Project, University of Southern California
Los Angeles, CA
August 2013 - May 2016
Advisor: Dr. Alice Parker

Project: Influence of Human Brain Augmentation on Self-awareness and Consciousness

- Research topics on building cognition in our neuromorphic and bio-inspired architectures using MATLAB toolbox.
- Demonstrate plausibility of machine subjective experience for neuromorphic architectures.

Research Assistant, USC Brain Project, Department of Neuroscience, University of Southern California
Los Angeles, CA
August 2013 - May 2016
Advisor: Dr. Michael Arbib

Project: Extending the Mirror Neuron System, II (MNS2) for behavioral reaching and grasping tasks

- Identified Brain Operating Principles (BOPs) and neural correlates that are useful for function of agency in autonomous systems.
- Modeled the cortical Mirror Neuron System and applied BOPs to simulate 1) self-recognition and 2) hand reaching and grasping tasks in an interactive user interface environment.
- Developed source code with Maya Animation Software and Python Scripting.

Research Assistant, Berkeley Wireless Research Center, University of California, Berkeley
Berkeley, CA
May 2011 - August 2011
Advisor: Dr. Borivoje Nikolic

Project: Energy efficient microprocessor

- Participant of Summer Undergraduate Program in Engineering Research at Berkeley (SUPERB-ITS).
- Investigated programmable logic array (FPGA) communication from host station (PC) to chip and vice versa, with an energy-efficient microprocessor via Ethernet connection.
- Researched ways to provide fast synchronization with the chip and establish robust protocol that can be re-used for future implementations, using Verilog and VHDL.

TEACHING EXPERIENCE

Teaching Assistant, Department of Computer Science, *University of Southern California*
August 2014 - December 2018
Role: Offered weekly 60-minute recitation; graded assignments, exams; helped design in-class materials for

- CS 561 – Foundations of Artificial Intelligence (graduate level), Fall 2018
- CS 109 – Introduction to Computing (undergraduate level), Spring 2016, Spring 2015
- CS 588 – Specification and Design of User Interface Software (graduate level), Spring 2014
- CS 101L – Fundamentals of Computer Programming (undergraduate level), Fall 2014

PUBLICATIONS

1. Bender, B. F., Johnson, N. J., ***Berry, J. A.***, Frazier, K. M., & Bender, M. B. (2022). Automated Urinal-Based Specific Gravity Measurement Device for Real-Time Hydration Monitoring in Male Athletes. Frontiers in Sports and Active Living, 4, 921418.
2. Bender, B. F., & ***Berry, J. A.*** (2023). Trends in Passive IoT Biomarker Monitoring and Machine Learning for Cardiovascular Disease Management in the US Elderly Population. Advances in geriatric medicine and research, 5(1).
3. ***Berry, J. A.***, and Parker, A. C. (2016). The Elephant in the Mirror: Bridging the Brain's Explanatory Gap of Consciousness. *Frontiers in Systems Neuroscience, 10*.
4. ***Berry, J. A.***, Ritter, R., Nagamori, A., & Valero-Cuevas, F. J. (2017). The neural control of movement must contend with trajectory-specific and nonlinearly distorted manifolds of afferent muscle spindle activity. In International Joint Conference on Neural Networks (IJCNN) (pp. 1188-1194), IEEE.
5. Marjaninejad, A., ***Berry, J.A.***, Valero-Cuevas, F.J. (2018). An Analytical Approach to Posture-Dependent Muscle Force and Muscle Activation Patterns. 40th Annual International Conference of the IEEE Engineering in Medicine and Biology Society.

6. ***Berry, J. A.***, & Valero-Cuevas, F. J. (2020, July). Sensory-Motor Gestalt: Sensation and Action as the Foundations of Identity, Agency, and Self. Artificial Life Conference Proceedings (pp. 130-138). MIT Press.
7. ***Berry, J. A.***, Marjaninejad, A., & Valero-Cuevas, F. J. (2023). Edge Computing in Nature: Minimal pre-processing of multi-muscle ensembles of spindle signals improves discriminability of limb movements. Frontiers in Physiology, 14.
8. Olson, E. A., Pavlasek, J., ***Berry, J. A.***, & Jenkins, O. C. (2023). Counter-Hypothetical Particle Filters for Single Object Pose Tracking. arXiv preprint arXiv:2305.17828.

INVITED TALKS, PRESENTATIONS, & PANELS

1. Panel Speaker – September 2022
   Future of Computing: Student & Early Career Researchers Roundtable
   USC/ISI Symposium on the Future of Computing Research

2. Panel Speaker – September 2022
   Designing for the Future: Immersive Tech and the Metaverse
   Wonder Women Tech, Long Beach, CA

3. Panel Speaker - March 2022
   Cultural Views on AI from African, Asia, and North America
   European Artificial Intelligence Week, Sponsored by AI4Beligum

4. Panel Moderator – October 2020
   Equity in Telehealth
   Artificial Intelligence in Los Angeles (AILA), Los Angeles, CA

5. Contributed Talk Speaker – July 2020
   Hybrid Life Topic, Sensory-Motor Gestalt
   Artificial Life Conference, Montreal, Canada

6. Poster Presentation – May 2017
   "Neural control of movement must contend with trajectory-specific and nonlinearly distorted manifolds…"
   30th International Joint Conference on Neural Networks, IEEE Computational Intelligence Society
   Anchorage, AK

7. Tech Panelist – August 2016
   Women in Technology and Engineering
   Google HQ, Venice, CA

LEADERSHIP POSITIONS

- Viterbi Global Committee, 2015-2016
- Vice President of Minority Engineering Graduate Association, 2015-2016
- Women in Engineering Student Advisory Board, 2015-2016

- Vice President of Dozoretz National Institute for Mathematics and Applied Sciences, 2011-2012
- Treasurer of National Society of Black Engineers (Local Chapter), 2010-2011
- Senator of National Society of Black Engineers (Local Chapter), 2009-2010

OUTREACH AND VOLUNTEERING

Institute of Engineering Community and Cultural Competence (IEC3), USC Viterbi School of Engineering
August 2017 - May 2018

- Volunteer STEM speaker for K-12 local outreach.
- Assisted in effort to eliminate the gender gap in STEM by providing culturally- and socially-relevant training and research to help pave the way for more women of color to enter STEM fields.

SHINE (Summer High School Intensive in Next-Generation Engineering), University of Southern California
June 2017 - July 2017

- Mentored for a seven-week opportunity for talented high school students to participate in hands-on engineering laboratory research focused on real-world problems.

Concerned Citizens Community Involvement, Limitless STEM Academy
January 2015 - Present

- Volunteer STEM mentor and robotics instructor.
- Build excitement, knowledge and understanding of STEM using the KISS Institute of Practical Robotics "Junior Botball® Challenge" curriculum.

Girl Scouts Science and Technology Robotics Demo Expo, Norfolk State University
August 2010 - May 2012

- Volunteered to demonstrate the construction of robotics and their applications for youth members of the Girl Scouts organization.

STARS (Science and Technology Academicians on the Road to Success) Tutoring Center, NSU
August 2009 - May 2012

- Volunteer mentor for high-school and middle school students in weekly tutoring sessions of class assignments for science & mathematics.

MEMBERSHIPS & AFFILIATIONS

- Armed Forces Communications and Electronics Association International (AFCEA)
- Association of Computing Machinery (ACM)
- Association for the Advancement of Artificial Intelligence (AAAI)
- Biocom - Life Science Association of California
- Institute of Electrical and Electronic Engineers (IEEE)
- National Society of Black Engineers (NSBE)
- Society of Women Engineers (SWE)
- Black in Robotics (BiR)
- Black in AI

- Society for Neuroscience (SFN)