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OMOJU THOMAS MILLER

skills

Programming Languages: Python, C, C++, Ruby, HTML, Prolog, SQL
Framework: XGBoost, NLTK, Pandas, Numpy, Scikit-learn, Word2Vec
Version Control Systems: Git

projects

Identify Factors that Predict Intro CS Experience Based on Gender
- Designed a data-driven investigation of the experience of intro CS at UC Berkeley.
- Implemented four models: Decision Trees, Random Forest, SVM, and XGBoost.
- Exploited information gain and cover as a mechanism for model interpretability.

Hiphopathy
- Designed and created a data science unit using rap lyrics for the BJC-CS10 curriculum. Implemented curriculum using Jupyter notebook and Python Natural Language Tool Kit (NLTK) package.
- Project was implemented on **edX** MOOClet, *BJC.3x: Data, Information and the Internet*. Course launched with over 20,000 students.
- Curricula unit had a significant positive effect on female students' belief about their ability to do well in CS classes and their ability to program.

An Adaptive Network-based Fuzzy Inference System (ANFIS) for Breast Cancer Classification
- Created supervised learning neural network model to classify breast cancer tissue.
- Ran four experiments around network architecture to determine the right model.
- Achieved a classification error of 0.9%

Vocabulary Glossary - Android Development for Beginners course
- Created explicit mental-models to communicate computation ideas via verbal and nonverbal materials.
- Co-Built Android For All Vocabulary Glossary for Android Development for Beginners course in partnership with **Udacity** and **Google**. Course launched with over 50,000 students.

#ThisIsGrit
- Created #ThisIsGrit social media campaign as a response to under-matching problem highlight by the department of education.
- Created several videos—role models in society speak of a time when things in education were really tough and they stuck it out—of high-achieving historically underrepresented persons who shared their #ThisIsGrit stories.
- Inspired first lady **Michelle Obama**'s Reach Higher program.

Semantic Web Expert System Shell (SWEXSYS)
- Created an intelligent system platform capable of reasoning from multiple ontologies using Resource Description Framework (RDF), Rule Markup Language (RuleML), as well as other knowledge expressed as functional, structural, or causal models.

- Built system using Prolog and XPCE package.
- Adapted SWEXSYS platform to sensor fusion using Dempster-Shafer theory of uncertainty.

Experience

Learners Guild - *Chair Advisory Board*   Oakland, CA | Dec 2015-Present
- Built inaugural advisory board.
- Worked with CEO to identify areas where support can add a significant performance difference to the company's bottom line.

UC Berkeley - *CSEd Doctoral Candidate*   Berkeley, CA | Dec 2013-May 2016
- Designed a data-driven, machine learning, research study to investigate gender in intro CS.
- Developed a data science unit within a historical intro CS course, CS10.

Google - *Technology Portfolio Manager*   Mountain View, CA | Feb 2014-Dec 2015
- Co-led a $15M CSEd portfolio. Grew the portfolio by 25%.
- Co-led the development of vocabulary glossary for Android Development for Beginners course.

ICSI[1] - *Graduate Researcher*   Berkeley, CA | Mar 2011-Dec 2012
- Implemented a conceptual metaphor Semantic MediaWiki in English, Spanish, and Farsi.
- Contributed to the design of conceptual metaphor framework.

UniversityNow - *Data Scientist (Intern)*   San Francisco, CA | Jun 2012 -Aug 2012
- Led a 3 person team responsible for creating an analytics console for understanding user behavior.
- Built back-end of data analytics console.

TEDxEuclidAve - *Founder and Curator*   Berkeley, CA | Aug 2011-Aug 2012
- Led the planning of TEDxEuclidAve 100+ member conference, bringing together innovative thinkers across technology, design and entertainment in service of social entrepreneurship.

Center for Advanced Sensors - *Graduate Researcher*   Memphis, TN | Aug 2003-Nov 2006
- Co-designed OntoSensor, a sensor ontology using Semantic Web Ontology Language (OWL).
- Created and adapted SWEXSYS platform to sensor fusion.
- Co-wrote one of the most cited research papers in its area

Thoughtware Learning Technologies - *Software Engr* Memphis, TN | Aug 1999-Nov 2001
- Contributed to the development of Internet based workforce development management system.

Udacity - Machine Learning Nanodegree   (In Progress)
UC Berkeley - Computer Science Education, Ph.D.   2016
University of Memphis - Electrical and Computer Engineering, M.S.   2004
University of Memphis - Computer Science, B.S.   2001

Conference proceedings

[1]International Computer Science Institute

Omoju Miller. 2016. "Gaining Insights into the Effects of Culturally Responsive Curriculum on Historically Underrepresented Students' Desire for Computer Science." *Proceedings of the 123rd ASEE Annual Conference, New Orleans, LA.*

D.J. Russomanno, C. Kothari and O. Thomas. 2005. "Building a Sensor Ontology: A Practical Approach Leveraging ISO and OGC Models." *The 2005 International Conference on Artificial Intelligence, Las Vegas, NV 637–643.*

D.J. Russomanno, C. Kothari and O. Thomas. 2005. "Sensor Ontologies: From Shallow to Deep Models." *Proceedings of the 37th Southeastern Symposium on Systems Theory, IEEE Press, Tuskegee, AL 107–112.*

O. Thomas and D.J. Russomanno. 2005. "Applying the Semantic Web Expert System Shell to Sensor Fusion using Dempster-Shafer Theory." *Proceedings of the 37th Southeastern Symposium on Systems Theory, IEEE Press, Tuskegee, AL. 11–14.*

O.A. Thomas and D.J. Russomanno. 2004. "SWEXSYS: A Semantic Web Expert System Shell." *Proceedings of the IASTED International Conference on Artificial Intelligence and Applications, part of the 23rd Multi-Conference on Applied Informatics, Innsbruck, Austria 240–245.*

Workshops and Presentations

Jennifer Arguello, Tiffany Price, Alexis Martin, Frieda McAlear, Omoju Miller, Dan Garcia. 2015. "Engaging Underrepresented Youth in Computer Science." *Computer Science Teachers Association (CSTA) in Grapevine, TX.*

Omoju Miller. 2015. "Towards a Global Framework for Culturally Resonant Learning." *2015 Sage Assembly in Paris, France.*

Omoju Miller and Oluwole Solana. 2014. "From San Francisco to Johannesburg, introducing girls to Computer Science in Industry supported programs." *2014 Grace Hopper Conference in Pheonix, AZ.*

Daniel D Garcia, Brian Harvey, Tiffany Barnes, Dan Armendariz, Jon McKinsey, Zachary MacHardy, Omoju Miller, Barry Peddycord III, Eugene Lemon, Sean Morris, Josh Paley. 2014. "AP CS Principles and the Beauty and Joy of Computing Curriculum." *Proceedings of the 45th ACM Technical Symposium on Computer Science Education, 746–746.*

Brian Harvey, Daniel D Garcia, Tiffany Barnes, Nathaniel Titterton, Omoju Miller, Dan Armendariz, Jon McKinsey, Zachary Machardy, Eugene Lemon, Sean Morris, Josh Paley. 2014. "Snap!(Build your own Blocks)." *Proceedings of the 45th ACM Technical Symposium on Computer Science Education, 749–749.*

Omoju Miller, Jordan Arnesen, Eric Chu, Grayson Flood, Kevin Funkhouser, Alex Greenspan, Daniel Hsu. 2013. "Hiphopathy: A Computational Thinking Process to Encourage Empathy." *2013 California Cognitive Science Conference, Berkeley, CA.*

Essays and reviews

Frieda McAlear, Omoju Miller, Dan Garcia, Alexis Martin. 2016. "Equity in Computer Science: From Exposure to Entrepreneurship." *Computer Science Teacher's Association (CSTA) Voice, 9–10.*

Omoju Miller. 2014. "Its Deeper than Rap, Toward Culturally Responsive CS." *XRDS: Crossroads, The ACM Magazine for Students, 28–30.*

Omoju Miller. 2013. "Winning with Both Sides of the Coin." *Coding Nation Report* 6–7.

selected conference presentations since 2012

Invited speaker "What Makes a Coder." Etsy, New York, New York, February 2016.

Panelist "Moral Machines: How Philosophy can help AI Decide Right from Wrong." Grace Hopper Celebration of Women in Computing, Texas, 2016.

Keynote "15+ Years of Learning Computational Intelligence." Annual OUSD Dinner with a Scientist, California, May 2016.

Invited panelist "SPIE Women in Optics." SPIE Photonics West Annual Conference, California, February 2016.

Invited speaker "Breaking Barriers: Changing the Landscape." Andela, Lagos, Nigeria, January 2016.

Invited panelist "Behind the Click: Intersection of Women of Color in STEM and Social Justice." Black Girls Code, California, December 2015.

Keynote "Moonshot Thinking." Joint Board of Advisors Meeting, Purdue School of Engineering and Technology, IUPUI, Indiana, October 2015.

Keynote "Breaking Barriers: Changing the Landscape." Youth Start Up Weekend at Castlemont High School, California, May 2015.

Invited speaker, "Breaking Barriers: Changing the Landscape." Office of Institutional Diversity, Harvey Mudd College, California, December 2014.

Keynote, "Inventing the Mythical Creature: Or How to Stay, Lead, and Delight in Tech as a Woman." Annual Celebration of the IU Center of Excellence for Women in Technology (CEWiT), Indiana, October 2014.

Invited presenter, "Made With Code." Annual Dreamforce Developer's Conference, San Francisco, October 2014.

Invited presenter, "Inventing the Mythical Creature: Or How to Stay, Lead, and Delight in Tech as a Woman." Focus 100, New York, September 2014.

Invited presenter, "#ThisIsGrit." **White House** Department of Education EdDataPalooza, Washington DC, January 2014.

Invited speaker, "Unintended Bias." Departmental Heads Gathering, **White House**, Washington DC, February 2013.

Invited panelist, "Social Justice in the Age of Big Data." Swinging and Flowing: Inclusion and Diversity in the Age of Data. The Data and Democracy Initiative @ CITRIS Berkeley, Berkeley, April 2012.

grants, honors, & awards

Levo 100: Transformer, Levo League, California, 2015.

Bloomberg Beta Future Founder, Bloomberg Beta, California, 2014.

Winner, White House Dept of Edu EdDataPalooza, Washington DC, January 2014

Kapor Capital Fellows, California, 2012.

Invited participant, TEDxSummit, Doha, Qatar, 2011.

Google CS Grad Forum Scholarship, California, 2010.

SESAME Graduate Division Fellowship, UC Berkeley, 2010–2011

Herff College of Engineering fellowship, Memphis, 2002–2006.

press, podcast, & coverage

Can You Stump Nick Craver?, Featured in Stack Overflow Podcast #91, October 2016.

Everybody's Got Questions (Yup), Featured in Science with Tom parody rap video, May 2016.

The Science of People in Tech, JavaScript Air Podcast, May, 2016.

Learners Guild, Investing in You to Code, HBCU to Startup Podcast, March, 2016.

Redesigning Computer Science 101 Education with Omoju Miller, The Hanselman Minutes Podcast: Fresh Air for Developers, August, 2015.

RoadTrip Nation: Omoju's Open Road, Pivot TV, March, 2015.

African Americans on the role of Higher Education in Innovation, #BITTechTalk, December, 2014.

Fortune-Tellers, Step Aside: Big Data Looks For Future Entrepreneurs, NPR's All Tech Considered, October 5, 2014.

Q&A with CS Ed Reformer and PhD Candidate Omoju Miller, Berkeley Bytes, March 11, 2014.