Lauren Alvarez

(562)-387-7374 | lalvare@ncsu.edu | linkedin.com/in/laurenalvarez16

Machine Learning Researcher | AI/ML for Social Good | Racial and Gender Equity Advocate
Interested in bias and fairness in machine learning research with an emphasis in machine learning for social good. Three years of machine learning education and implementation experience, and 6 years of diversity, inclusion, and equity (DEI) education, training, and mentorship.

EDUCATION

Doctorate of Philosophy in Computer Science *Expected Graduation May 2025*
Expected Dissertation Topic: ML for Social Good
North Carolina State University, Raleigh, NC *Cumulative GPA: 3.857*

Bachelor of Science in Applied Mathematics May 2019
Minor in Computer Science
Loyola Marymount University, Los Angeles, CA

SKILLS & RELEVANT GRADUATE COURSES

Courses: Advanced Topics in Machine Learning, Artificial Intelligence I & II, Cognitive Systems Design, Graph Theory, Algorithms, Data Structure, Databases, Systemic Changes in Education, Scholar Leaders: Diversity and Equity in Schools and Communities
Machine Learning Techniques: Clustering, Linear Classifier, Supervised Learning, Reinforcement learning
Programming Languages: Python, Snap*!*, Netsblox, Java , HTML, SQL, JavaScript, NodeJS, Racket
Software/Tools/IDEs: Eclipse, ATOM, Oracle, SPSS, IBM Watson Assistant, LaTeX, MATLAB, *Mathematica*, Netlogo
Verbal Languages: Fluent in English and Spanish

ML/AI RESEARCH PROJECTS

Machine Learning/AI Module "**Computer Science Frontiers"** NCSU (August 2020 – Present)
- Full life cycle design and development of 9-week module to introduce advanced machine learning topics with socially relevant applications to recruit more high school girls into computing fields
- Mentored junior developers, participated in product reviews, applied user persona to deliver customized content, researched, and implemented third party tools to improve project development
- Presented bi-weekly updates to stakeholders, integrated feedback, and immediately moved to pilot testing
- Piloted the curriculum with 90 users and submitted research manuscript
  Keywords: computer science education, broadening participation, neural networks, datasets, Netsblox, Python

K-means Clustering Counties: Addressing Food Insecurity NCSU (December 2020)
- Implemented 2 layers of K-means clustering to extract related features from food insecurity datasets and delivered report on areas of high insecurity in congruence with the transparency and accessible tenants of AI for Social Good
  Keywords: K-means clustering, food insecurity, Food Access dataset, Country Demographics Dataset, Python

Chatbot using IBM Watson Assistant NCSU (Summer 2020 – December 2020)
- Coordinated between company representatives for IBM Watson Assistant, New York Times, Yelp, and Democracy Now to receive access to credentials for product collaboration and usage
- Led development team to build chatbot delivering that promotes Black Lives Matter Movement education and racial equity activism-related resources and spearheaded product launch with model Karlie Kloss' Kode with Klossy team through Instagram "takeover"
  Keywords: chatbot, IBM Watson Assistant, HCI, APIs, Java

Unsupervised Topic Modeling "Bias Clustering for Online Political Articles" LMU (Summer 2018)

- Developed survey on perception of bias toward news sources and tested on Mechanical Turk participants. Analyzed data in preparation of training machine model to detect biases
  Keywords: political bias, bias detection, unsupervised learning, topic modeling, online clustering, NodeJS, HTML

Automation Model "Modeling Electrical Signals in the Uterus" LMU (Summer 2017)

- Executed an organ-level model of the uterus in an automaton format that incorporates cell-to-cell communication, based on previous work by Barclay
- Utilizing agent-based rules to describe how cells would communicate to mimic the presence of gap junctions, explored the irregular communication patterns through the presence of scars
  Keywords: automaton model, uterine modeling, Netlogo

RESEARCH EXPERIENCE

North Carolina State University | *Research Assistant for Dr. Tiffany Barnes* **August 2019 – Present**

- Co-authored 6 research manuscripts
- Formulated innovative research ideas for computing for social good research projects
- Mentored a total of 2 graduate students, 10 undergraduates, 4 teachers, and 3 high school students, including working with the Catalyst Program (students with disabilities)
  - Mentored 7 undergraduates and 2 K-12 teachers in research and the development of computing infused curriculum activities
- Identified and submitted NSF grant opportunities
  - Contributed to literature and related works for *$1 million* ECR grant
  - Edited submissions for ITEST grant relating to Block Based Programming Portal
  - Refined evaluation and theory for *$1.1 million* AISL grant relating to K-12 CS Education in rural NC
- Completed multiple field studies evaluating use of computing infused science activities K-12 classrooms
- Directed the departmental anti-racism strategic planning committee on actionable next steps for improving diversity, equity, and inclusion between future and current students, faculty, and staff
- Webmaster for the Game2Learn Lab – HTML, CSS

PRESENTATIONS & PUBLICATIONS

Alvarez, L., Gransbury, I., Cateté, V., Barnes, T., Ledeczi, A., &. Grover, S. (2021, September). A Socially Relevant Focused AI Curriculum Designed for Female High School Students. In the *Proceedings of the 12th AAAI Symposium on Educational Advances in Artificial Intelligence*.

Cateté, V., **Alvarez, L.,** Isvik, A., Milliken, A., &. Barnes T. (2020, November). Aligning Theory and Practice in Teacher Professional Development for Computer Science. In *Proceedings of 20th Koli Calling International Conference on Computing Education Research.*

Isvik, A., Cateté, V., **Alvarez, L.,** Lytle, N., & Barnes, T. (2020, August). Exploring Differences Between Student and Teacher Created Snap! Projects. In *2020 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC)* (pp. 1-5). IEEE.

Alvarez, L., Ruiz, S., Hukkoo, S., & Forney, A. (2020, March). Bias Clustering for Online Political Articles. In *Proceedings of the 51th ACM Special Interest Group on Computer Science Education (SIGCSE) Technical Symposium.*

Alvarez, L., Ruiz, S., & Forney, A. (2018, September). Bias Clustering for Online Political Articles. In *Proceedings of the 6th Annual Loyola Marymount University McNair Symposium.*
Alvarez, L., Ruiz, S., & Forney, A. (2018, July). Bias Clustering for Online Political Articles. In *Proceedings of the 26th Annual McNair Symposium.*

Alvarez, L., & Gallegos, A. (2018, January). An Automaton-Based Model of Uterine Contractions. In *Proceedings of the Joint Mathematics Meeting.*

Alvarez, L., & Gallegos, A. (2017, October). An Automaton-Based Model of Uterine Contractions. In *Proceedings of the Society for Advancement of Chicano/Hispanic and Native Americans in Science (SACNAS).*

Alvarez, L., & Gallegos, A. (2017, September). Modeling Electrical Signals in the Uterus. In *Proceedings of the 5th Annual Loyola Marymount University McNair Symposium.*

Alvarez, L., & Gallegos, A. (2017, July). Modeling Electrical Signals in the Uterus. In *Proceedings of the 25th Annual UC Berkeley McNair Symposium.*

LEADERSHIP EXPERIENCE

NC State University | Senior Research Assistant **August 2020 – Present**

- Onboard new lab members and foster a positive and inclusive learning environment
- Provide resources for relevant skill building such as resume building and fellowship application materials
- Host one-on-one and group focus sessions for mentoring and support
- Managed critical decisions on pertinent research projects

Loyola Marymount University | Lead Resident Advisor (RA) **January 2016 – May 2019**

- Maintained a positive living environment for residents, community development activities, administrative functions, policy enforcement, crisis intervention, building duty coverage, and group and individual assistance.
- Mentored 10 first- and second-year RAs and facilitated monthly DEI in-service staff training workshops. Awarded the 2019 Promotion of Justice Award.

Loyola Marymount University | ITS Student Help Desk Technician **August 2015 – August 2017**

- Obtained fluency in Windows and MacOS, basic hardware assistance and operating troubleshooting, and login and general technology issue management.
- Gained experience in customer service and trained 3 new employees

AWARDS & ASSOCIATIONS

- Southern Regional Education Board's Doctoral Scholars Program Fellow $25,000
- The National GEM Consortium Fellowship Program University Fellow
- Ronald E. McNair Post-Baccalaureate Achievement Program Scholar
- 2019 LMU Student Housing Office's Promotion of Justice Award
- STARS Scholars, Regional Leadership
- ACM Student Member
- Ignatian Leadership Institute Certificate Recipient
- Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) member
- The National Society of Collegiate Scholars