

Rebecca Pattichis

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CAREER OBJECTIVE

I am experienced in adapting modern Natural Language Processing methods for low-data, multilingual language settings. I am currently seeking a technical role focusing on interpretable methods, multilingual language generation, and evaluation.

EDUCATION

University of California, Los Angeles 2022 – 2024
M.S. in Computer Science, Advisor: Prof. Nanyun Peng. GPA: 3.90
Awarded Google DeepMind Fellowship

Pattichis, R. (2024). **Grounding Code-Switching Evaluation to Community Speech Patterns**. [Master's Thesis, UCLA]. UCLA ProQuest Repository.

Stanford University 2018 – 2022
B.S.H. in Computer Science (Focus: Artificial Intelligence), Thesis Advisor: Prof. Christopher Manning. GPA: 3.87
Minors: Comparative Studies in Race & Ethnicity, Dance
Awarded Class of 2022 Stanford Award of Excellence

Pattichis, R. (2022). **Centering the Voices of First-Generation Immigrant Youth: Multilingual NLP Methods in the Translanguaging Context**. [Undergraduate Honors Thesis, Stanford University]. Stanford Digital Repository.

WORK EXPERIENCE

Research Associate Sept 2024 – Present
CYENS Centre of Excellence *Nicosia, Cyprus*

- Adapting large language models for multi-turn creative text generation in Cypriot Greek through parameter-efficient fine-tuning and multi-objective optimization. Using DeepSpeed for multi-GPU model loading/training.
- Initiated and establishing long-term collaborations with the Cyprus Broadcasting Network for access to 100+ hours of archived CyGr audio and text data.
- Mentoring 3 undergraduate University of Cyprus students through their undergraduate theses.

Lecturer for CS 30: Principles and Practices of Computing June 2024 – July 2024
Computer Science Summer Institute, UCLA *Los Angeles, CA*

- Developed class materials (lecture slides, homework, exams) to teach 50 high school students in Python.
- Managed 4 teaching assistants through weekly meetings to coordinate grading and section engagement.

Google DeepMind Fellow Sept 2022 – Sept 2024
University of California, Los Angeles, advised by Prof. Peng *Los Angeles, CA*

- ★ **Understanding Neural Network Systems for Image Analysis using Vector Spaces**
 - Visualized signal spaces for weights and residual vector spaces for information lost at each neural network layer.
 - Implemented invertible networks for computing input images that yield specific outputs using ResNet18.
- ★ **Grounding Code-Switching Evaluation to Community Speech Patterns**
 - Validated the Intonation Unit (IU)-boundary constraint, showing that bilinguals prefer code-switching (CS) at IU boundaries using 10 transcripts (79k words, and 27k IUs) and adapting CS Metrics to the IU token level.
- ★ **Lyric Generation Based on Model Complexity and Repetition Evaluation**
 - Fine-tuned GPT-2 (124M parameters) for 6 topics found after clustering 7k song examples using LDA topic modeling, which was competitive when comparing Self-GLEU performance against RNN and 6-shot GPT-3.

Machine Learning (ML) Graduate Tutor June 2023 – Aug 2023
Break Through Tech AI *Los Angeles, CA*

- Led weekly lab section and office hours (2hrs/week) for 100 virtual students on ML topics in Python.
- Graded for 24 students and provided detailed feedback for 75 assignments weekly.

Software Engineer June 2021 – Sept 2021
Raheem *Oakland, CA*

- Used TypeScript, React Native, and Expo to design the front-end user log-in page for PATCH (People and Technology for Community Health), an app meant to connect community organizers to aid in first response.

Research Intern

June 2020 – Sept 2020

Stanford Computational Policy Lab (SCPL)

Stanford, CA

- Scraped online database in Python (selenium) and visualized detainer trends by demographic (e.g., age, gender) over time in R (ggplot2) alongside a state-by-state comparison to understand nationwide trends against Texas.
- Prepared distinct reports and presentations for legal stakeholders and the SCPL research team respectively.

Lead Community Coordinator

Sept 2018 – June 2022

El Centro Chicano y Latino

Stanford, CA

- Led a group of 5 students to organize and execute 25+ events annually, catering to the needs of the Latinx student body and increasing in-person and online engagement by 50%.

SELECTED PUBLICATIONS

Alvero, A., & Pattichis, R. (2024, July). **Multilingualism and Mismatching: Identification and Analysis of Spanish Language Usage in College Admissions Essays** *Poetics*.

Wan, Y., Subramonian, A., Ovalle, A., Lin, Z., Suvarna, A., Chance, C., Bansal, H., Pattichis, R., & Chang, K. (2024, April). **Survey of Bias In Text-to-Image Generation: Definition, Evaluation, and Mitigation**. *ArXiv*.

Pattichis, R., & Pattichis, M. (2024, March). **Understanding Neural Network Systems for Image Analysis using Vector Spaces**. In *The IEEE Southwest Symposium on Image Analysis and Interpretation (SSIAI)*.

Pattichis, R., LaCasse, D., Trawick, S., & Torres Cacoulos, R. (2023, December). **Code-switching Metrics Using Intonation Units**. In *The 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP)*.

ACADEMIC RESEARCH PROJECTS

Stanford University

Undergraduate Student

Stanford, CA

★ RobustQA Using Data Augmentation

Jan 2021 – Mar 2021

- Continually pre-trained DistilBERT for domain-agnostic question-answering (QA) by modifying QA training data by applying 15% token masking. Achieved an EM of 0.43 and an F1 of 0.61 (2 points higher than baseline).

★ Modeling Platelet Transfusion for the Stanford Blood Center

Sept 2019 – Dec 2019

- Implemented bag-of-words (BoW) and RNNs (Tensorflow) using 150k surgery descriptions to predict future platelet transfusions need. Achieved an F1 of 0.5 with BoW, and RNN accuracy of 98% with ROC area of 0.89.

SERVICE

- Reviewer for NAACL 2024 Student Research Workshop.
- Board Member of the UCLA Graduate Women in Computer Science, 2022-2024.

SKILLS

Programming

Python (PyTorch, DeepSpeed), R, Java, C++, C

Natural Languages

English (Native), Spanish (Native), Cypriot Greek (Native)

Soft Skills

Grant Writing, Major Event Planning, Mentorship, Social Media

Hobbies

Flamenco/Dance, Writing

SELECTED AWARDS & FELLOWSHIPS

Google DeepMind Fellow

Sept 2022 – 2024

Financially supports UCLA Master's student studying Artificial Intelligence.

Class of 2022 Stanford Award of Excellence

2022

Awarded to the top 10% of the graduating class.

Cecilia and Tony Burciaga Community Development Award

2022

Awarded to 2 students at Stanford's El Centro, recognizing their commitment to the Latinx student body.

Cadence's Latinx Students in Technology Scholarship

2021

Awarded to students with impressive academic records, notable leadership, and outstanding recommendations.

Stanford's CS for Social Good Fellowship

2021

3-month funding (\$7,000) to work with an organization using technology to address social issues.

Stanford VPUE STEM Fellow

2020

Awarded to students promoting diversity in STEM, with 3-month funding (\$7,000) to conduct independent research.