Rayyan Merchant

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🌐 http://merchantrayyan.github.io/

Education

2019 – December 2023 (expected)   **University of Florida, Gainesville, FL**
B.Sc. Computer Science, B.A. Linguistics (summa cum laude)
GPA: 3.63/4.00
Thesis
Title: A Grapheme-to-Phoneme Approach to Tajik-Farsi Transliteration
Designation: Highest Honors
Advisor: Dr. Kevin Tang

Apr. - Aug. 2022   **RWTH Aachen, Aachen, Germany**
Spring Semester Exchange

Research Experience

2019-Present   **Speech, Lexicon, and Modeling Laboratory**
Undergraduate Researcher (*https://slam.phil.hhu.de*)
Supervisor: Dr. Kevin Tang
• As part of my honors thesis in linguistics, I utilize transformer-based neural models to attempt translation through transliteration between Iranian/Afghan Persian and Tajik Persian, written in the Perso-Arabic and Tajik-Cyrillic scripts, respectively
• Examining ways to computationally detect differences between dialects of Spanish through analyzation of Spanish-language corpora with text collected from the Internet and subtitles
• Wrote code in Python to automate Internet text mining, as well as filter, split, and analyze corpora

Articles (Submitted)

1. **Rayyan Merchant**, Akhilesh Kakolu Ramarao, and Kevin Tang, "Connecting the Persian-speaking World through Transliteration," Submitted.

2. **Rayyan Merchant** and Kevin Tang, Submitted. [ANONYMISED]. *2024 Joint International Conference on Computational Linguistics, Thirteenth Language Resources and Evaluation Conference*.

Research Presentations

1. **Rayyan Merchant** and Kevin Tang, *Connecting the Persian-speaking World through Transliteration.* The 3rd North American Conference in Iranian Linguistics, Los Angeles, CA., Apr. 2023, 20-minute talk with 10-minute QA.

2. **Rayyan Merchant** and Kevin Tang, *Translating through transliteration: the case of Tajik Persian.* The 98th Annual Meeting of the *Linguistic Society of America*, Denver, Colorado., Jan. 2023, Poster available to view online.

3. **Rayyan Merchant**, Kevin Tang, and Akhilesh Ramarao, *Machine Transliteration between two Persian Dialects - The Case of Farsi and Tajiki.* 32nd Tagung der Computerlinguistik-Studierende (TaCoS), Düsseldorf, Germany., Jun. 2023, 20-minute talk with 10-minute QA.

Projects

2023   **M*AI*STRO: A DJ AI Web Application**
CIS4914: Senior Project
• Worked in a team of 4 to construct a web application capable of interpreting text input providing real-time song recommendations using the ChatGPT and Spotify APIs and Machine Learning
• Worked as the team's "Machine Learning Engineer" to construct a emotion detection (multi-class classification) model utilizing TensorFlow

2021   **A Simulation Study Exploring the Role of Pronouns in Gender Stereotypes**
LIN4930: Computational Linguistics - Final Project
• With a team member, brainstormed, planned, and conducted an original research project.
• Investigated the impact of pronouns on gender bias by making gendered pronouns gender-neutral (singular 'they' and neopronoun 'ze') and measuring the association between gendered words and occupations with word embeddings.

Additional Experience

June. 2023 - Present   **Machine Learning for Endangered Language Documentation (MELD) Laboratory**
Paid Annotation Assistant
• Annotating African American oral histories for grammatical features of African American English, to be used for NLP tools for African American English

Aug. 2021 - Mar. 2022   **George A. Smathers Libraries at U.F.,**
Paid Transcription Assistant (20 hrs/week)
• Manually transcribed, organized, and summarized interviews as part of the Native American Oral History Project funded by the Doris Duke Charitable Foundation.

Skills

Languages   English (native), Spanish (proficient) , Portuguese (proficient), German (proficient), Persian (proficient), Turkish (conversational), Urdu (conversational), Konkani (conversational)

Coding   Python, C++, Java, R, SQL

Libraries   NLTK, TensorFlow, Pandas, ScraPy, JoeyNMT, Matplotlib, NumPy, SpaCy

Awards

2023   **Summer Undergraduate International Research Program**
$5,000 scholarship to conduct thesis research at Heinrich-Heine University in Germany

LinguistList Rising Star (https://old.linguistlist.org/issues/34/34-1460.html)
Each year, LinguistList selects BA and MA students in linguistics that "exemplify a commitment to not only academic performance, but also to the field of linguistics and principles of scientific inquiry."

Awards (continued)

2022,2023   **Wentworth Travel Scholarship**
$500 scholarship from UF Honors for conference travel and studies at the Belgian Carillon School

2021   **University Scholars Program**
One of 200 students across UF selected to work one-one-one with a faculty member on a research project of the student's choice with a $1,750 stipend

2020   **Boren STEM Summer Scholarship**
$8,000 State Department scholarship to study Tajik Persian in Tajikistan
Canceled due to COVID

2019   **University Research Scholars Program**
Invitation-only introductory research program at UF

2018   **Benacquisto Scholarship**
Full-ride scholarship as National Merit Finalist for estimated cost of attendance at UF

   National Security Language Initiative for Youth (NSLI-Y)
State Department scholarship to study Tajik Persian in Tajikistan

2017   **Eagle Scout**

Miscellaneous Experience

Volunteering

2023   **Samuel Proctor Oral History Program**,
- Conducting and manually transcribing oral history interviews
- Manually annotating transcripts for African American English grammatical features

Certification

2020   **Advanced Low in Tajiki (Tajik Persian)**.
Awarded by the American Council on the Teaching of Foreign Languages

Music

2021-Present   **Carillon**
Play the carillon in UF's Century Tower under the tutelage of Dr. Laura Ellis. Also received instruction from Luc Rombouts of the Belgian Royal Carillon School.

2015-2019   **Classical Voice**
Participated in high school choir all four years, making it to the Florida All-State Concert Choir twice and achieving Superiors at Florida Vocal and Ensemble three times.