Antonio Laverghetta Jr.

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[LinkedIn] ◊ [GitHub]

EDUCATION

Ph.D. in Computer Science and Engineering *(expected)* May 2024
University of South Florida Tampa, FL

MS in Computer Science May 2021
University of South Florida Tampa, FL

BS in Computer Science December 2018
University of South Florida Tampa FL

RESEARCH EXPERIENCE

Research Assistant January 2019 – Present
Advancing Machine and Human Reasoning Lab Tampa, FL

- Analyzed the ability of transformer language models to predict human psychometric properties on AI benchmarks.
- Used neural language models model word acquisition trajectories.
- Developed a model of analogical reasoning using word embeddings.
- Research was published in respected conferences.

PROFESSIONAL EXPERIENCE

Research Data Scientist Intern May 2022 – August 2022
Meta Seattle, WA

- Developed a machine learning model to diagnose the root cause of lagging alerts in Meta's streaming processing pipeline.
- Performed time series analysis using Kats to detect anomalies in streaming jobs.
- Worked with oncall engineers to develop new features to build into the model.
- Created an improved model that increased detection accuracy by 10%.

R&I Intern May 2021 – August 2021
InterDigital Los Altos, CA

- Developed NLP models for comparing and ranking long documents.
- Used topic models to analyze model predictions on a dataset of patents.
- Created a novel curriculum learning framework based on clustering doc2vec embeddings.
- Models achieved 2-3% average increase in precision over baseline on a document ranking task.

Computer Science Intern May 2018 – September 2018
ConnectWise Tampa, FL

Intern August 2016 – July 2017
Tenex Software Solutions Tampa, FL

AWARDS

IMPS 2021 Duolingo Student Award July 2021

- One of 3 to receive award for best student presentation, out of 130 participants.

SKILLS

Languages: Java, C, C++, C#, HTML, CSS, JavaScript, Python, JSON, SQL, XML, YAML
Libraries: NumPy, SciPy, scikit-learn, NetworkX, OpenCV, Bootstrap, jQuery, TensorFlow, PyTorch, Keras, Transformers, Flask, Matplotlib, Pandas, Jupyter
Development Tools: Visual Studio, git, Notepad++, Anaconda, Postman, GitHub
Cloud: Google Cloud, AWS
Theory: Knowledge Graphs, Natural Language Processing, Deep Learning, Machine Learning

PUBLICATIONS

[1] Laverghetta A., Jr., & Licato, J. (2022) Developmental Negation Processing in Transformer Language Models. In *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics (Volume 2: Short Papers), 545–551.* (acceptance rate ~20%)

[2] Laverghetta, A., Jr., Nighojkar, A., Mirzakhalov, J., & Licato, J. (2021). Can Transformer Language Models Predict Psychometric Properties? In *Proceedings of *SEM 2021: The Tenth Joint Conference on Lexical and Computational Semantics* (pp. 12-25). Online: Association for Computational Linguistics.

[3] Laverghetta A., Jr., & Licato, J. (2021). Modeling Age of Acquisition Norms Using Transformer Networks. *The International FLAIRS Conference Proceedings, 34.*

[4] Mirzakhalov, J., Babu, A., Ataman, D., Kariev, S., Tyers, F., Abduraufov, O., ... & Chellappan, S. (2021). A Large-Scale Study of Machine Translation in the Turkic Languages. In *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing* (pp. 5876 – 5890) (acceptance rate ~ 23%).

[5] Laverghetta, A., Jr., Mirzakhalov, J., & Licato, J. (2020). Towards a Task-Agnostic Model of Difficulty Estimation for Supervised Learning Tasks. In *Proceedings of the 1st Conference of the Asia-Pacific Chapter of the Association for Computational Linguistics and the 10th International Joint Conference on Natural Language Processing: Student Research Workshop* (pp. 16-23). Suzhou, China: Association for Computational Linguistics.

[6] Boger, M., Laverghetta, A., Jr., Fetisov, N., & Licato, J. (2019). Generating Near and Far Analogies for Educational Applications: Progress and Challenges. In *2019 18th IEEE International Conference On Machine Learning And Applications (ICMLA)* (pp. 1968-1975). Boca Raton, FL: IEEE.