Justin Lovelace

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Education

Carnegie Mellon University *August 2020-August 2022*
Masters in Language Technologies (MLT), School of Computer Science GPA: 4.16

Texas A&M University *May 2020*
B.S. in Computer Science, Minor in Mathematics GPA: 4.0
Honors Fellow, Undergraduate Research Scholar

Undergraduate Honors Thesis
Predicting ICU Readmission with Clinical Notes (**Outstanding Undergraduate Honors Thesis Award**)

Publications

1. **J. Lovelace**, D. Newman-Griffis, S. Vashishth, J.F. Lehman, and C. Rosé, "Robust Knowledge Graph Completion with Stacked Convolutions and a Student Re-Ranking Network", *Annual Meeting of the Association for Computational Linguistics and the International Joint Conference on Natural Language Processing* (**ACL-IJCNLP 2021**).
2. S. Khosla, **J. Lovelace**, R. Dutt, A. Pratapa, "Team JARS: DialDoc Subtask 1 - Improved Knowledge Identification with Supervised Out-of-Domain Pretraining", *ACL-IJCNLP Workshop on Document-grounded Dialogue and Conversational QA* (**ACL-IJCNLP DialDoc 2021**).
3. **J. Lovelace**, B. Mortazavi, "Learning to Generate Clinically Coherent Chest X-Ray Reports", *Findings of the Conference on Empirical Methods in Natural Language Processing* (**EMNLP 2020: Findings**).
4. **J. Lovelace**, N. Hurley, A. Haimovich, B. Mortazavi, "Dynamically Extracting Outcome-Specific Problem Lists from Clinical Notes with Guided Multi-Headed Attention", *Machine Learning for Healthcare Conference* (**MLHC 2020**).
5. **J. Lovelace**, N. Hurley, A. Haimovich, B. Mortazavi, "Mining Dynamic Problem Lists from Clinical Notes for the Interpretable Prediction of Adverse Outcomes", *ACM Conference on Health, Inference, and Learning Workshop* (**ACM CHIL Workshop 2020**). (**Oral Spotlight**)
6. **J. Lovelace**, N. Hurley, A. Haimovich, B. Mortazavi, "Explainable Prediction of Adverse Outcomes Using Clinical Notes", *NeurIPS Machine Learning for Health Workshop* (**NeurIPS ML4H 2019**).

Research Experience

Teledia Lab *August 2020-Present*
Graduate Research Assistant with Dr. Carolyn Rosé (CMU)

- Developing methods to utilize unstructured text to improve knowledge graph completion.

Systems and Technology for Medicine and IoT Lab *April 2018-May 2020*
Undergraduate Researcher with Dr. Bobak Mortazavi (TAMU)

- Developed convolutional attention models for the interpetable prediction of ICU readmission and patient mortality using clinical notes.
- Developed an abstractive radiology report generation framework that improved the clinical correctness of generated reports.

Industry Experience

Facebook (Search) *May 2020-August 2020*
Sofware Engineering Intern

- Developed a service (C++, Python, SQL) to onboard keywords to the search index in real time from a variety of sources (e.g. news articles).
- Conducted experiment with live traffic and found that my framework improved Facebook's total search volume, search value, and keyword retrieval latency.

- Launched service to production.

Facebook (Notification Ranking) *May 2019-August 2019*
Sofware Engineering Intern
- Implemented rate limiting service (C++, Python) to protect Facebook's internal reachability service and its dependencies from unstable traffic.
- Developed ML pipeline (Python, SQL) to extend reachability service from email to include SMS.
- Demonstrated that the ML model can reduce the amount of undeliverable SMS sent by over half.

Raytheon Applied Signal Technology *May 2018-August 2018*
Sofware Engineering Intern
- Developed scripts (Python) to automate testing procedures across multiple platforms, saving my team many hours of manual testing with each release.

Presentations

Clinical NLP Workshop at EMNLP 2020 *Nov 2020*
Learning to Generate Clinically Coherent Chest X-Ray Reports (Oral Presentation)
Texas A&M Undergraduate Research Scholars Symposium *March 2019*
Predicting ICU Readmission with Clinical Notes (Oral Presentation)
Texas A&M Engineering Project Showcase *April 2017*
Predicting User Characteristics from their Social Media Activity (Poster Presentation)

Graduate Coursework

Machine Learning, **Deep Learning**, **Natural Language Processing**

Technical Skills

Python, C++, SQL, Pytorch, Tensorflow, Git

Service

Reviewer
- ACM Conference on Health, Inference, and Learning (CHIL), 2020, 2021
- NeurIPS Machine Learning for Health (ML4H) Workshop, 2019, 2020
- PLOS One, 2020, 2021

Honors and Awards

Computing Research Association's 2020 Outstanding Undergraduate Researcher Award (Honorable Mention)

Outstanding Undergraduate Honors Thesis Award

Machine Learning For Health (ML4H) Workshop at NeurIPS 2019 Travel Grant Award

Craig and Galen Brown Foundation Scholar