MELISSA ROEMMELE

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OVERVIEW

I'm a research scientist and software developer working at the intersection of natural language processing (NLP) and human-computer interaction (HCI). I'm passionate about using AI to augment human creativity. I'm currently part of the Midjourney Storytelling Lab, a research team developing AI-based tools to facilitate novel ways to tell stories. My work primarily focuses on how to evaluate and optimize natural language interfaces for these tools, especially with regard to prompting techniques for large language models (LLMs) and text-to-image models. I hold a PhD in Computer Science from the University of Southern California, where my dissertation explored emerging applications of language modeling to creative writing assistance. See my Google Scholar page for my full list of publications.

EXPERIENCE

Research Scientist, Midjourney, San Francisco, CA   6/2024 - present
As part of the Midjourney Storytelling Lab, developed and published research on tools for AI-supported storytelling, including narrative scene illustration.

Research Scientist, Language Weaver (RWS Group), CA   6/2018 - 6/2024
Developed and published research on various NLP capabilities for enabling rapid content understanding and creation, including automated summarization, simplification, question generation, and elaboration. In 2024, led a team developing data and models for machine translation quality estimation.

Research Assistant, Institute for Creative Technologies   8/2012 - 5/2018
University of Southern California, Los Angeles, CA
Explored machine learning techniques for narrative continuation, the task of predicting "what happens next" in stories. In particular, developed an application called Creative Help that helps people write stories by automatically generating suggested sentences. This was one of the first demonstrations of the use of language models (LMs) for creative writing assistance.

Data Science Intern, Civis Analytics, Chicago, IL   6/2016 - 8/2016
Examined techniques for visualizing and interpreting neural networks for text prediction tasks.

FileMaker Developer, DB Services, Indianapolis, IN   11/2011 - 7/2012
Developed relational database applications using the software FileMaker.

EDUCATION

PhD, Computer Science (2018)
University of Southern California, Los Angeles, CA
    Thesis: *Neural Networks for Narrative Continuation* (abstract) (full text)
    Advisor: Andrew Gordon

MA, Computational Linguistics (2010)
Indiana University, Bloomington, IN

BA, Linguistics and Psychology, *Summa Cum Laude* (2009)
Miami University, Oxford, Ohio

TECHNICAL SKILLS

Expertise in Python and Python tools for statistical modeling/machine learning (PyTorch, Scikit-learn, HuggingFace Transformers), NLP (spaCy, gensim, NLTK), and data computing (numpy, scipy, pandas). Experience with web development frameworks (Vue.js, React, Javascript/HTML/CSS).