MELISSA ROEMMELE

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OVERVIEW

I'm currently a research scientist at SDL Research, working on interactive applications that use natural language processing (NLP) to facilitate content understanding and creation. I completed my PhD in the Department of Computer Science at University of Southern California. As a PhD student, I worked at the USC Institute for Creative Technologies in the Narrative Group, which pursues research at the intersection of artificial intelligence and narrative. My thesis explored machine learning approaches for interactively predicting "what happens next" in text-based stories, both in a commonsense reasoning framework as well as for human authoring support. I'm passionate about applying NLP to explore novel forms of human-computer interaction, in particular for augmenting human storytelling and creativity.

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

EXPERIENCE

Research Scientist, SDL Research, Los Angeles, CA 6/2018 - present
I developed various NLP software components for enabling rapid content understanding, including extractive summarization, topic classification, keyphrase identification, and semantic-based sentence autocompletion.

Research Assistant, Institute for Creative Technologies 8/2012 - 5/2018
University of Southern California, Los Angeles, CA
In the Data-driven Interactive Narrative Engine project, I explored machine learning techniques for predicting "what happens next" in stories. In particular, I developed an application called Creative Help that provides automated assistance for story writing. Additionally, in the Heider Simmel Interactive Theater project, I used machine learning techniques to model story-based interpretations of abstract visual animations.

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

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

Computational Linguist, Rivera Group, Sellersburg, IN 9/2010 - 4/2011
I developed a system for automatically detecting topics in internet weblogs.

SELECTED PUBLICATIONS (see Google Scholar for all)

Roemmele (2019). Identifying Sensible Lexical Relations in Generated Stories. Workshop on Narrative Understanding at NAACL 2019.

Roemmele and Gordon (2018). Linguistic Features of Helpfulness in Automated Support for Creative Writing. Storytelling Workshop at NAACL 2018.

Roemmele and Gordon (2018). An Encoder-decoder Approach to Predicting Causal Relations in Stories. Storytelling Workshop at NAACL 2018.

Roemmele and Gordon (2018). Automated Assistance for Creative Writing with an RNN Language Model. Demo at IUI 2018.

Roemmele, Gordon, and Swanson (2017). Evaluating Story Generation Systems Using Automated Linguistic Analyses. Workshop on Machine Learning for Creativity at SIGKDD 2017.

Roemmele, Mordo, and Gordon (2017). Natural-language Interactive Narratives in Imaginal Exposure Therapy for Obsessive-Compulsive Disorder. Computational Linguistics and Clinical Psychology Workshop at ACL 2017.

Roemmele, Kobayashi, Inoue and Gordon (2017). An RNN-based Binary Classifier for the Story Cloze Test. Linking Models of Lexical, Sentential and Discourse-level Semantics Workshop at EACL 2017.

Roemmele, Morgens, Gordon, and Morency (2016). Recognizing Human Actions in the Motion Trajectories of Shapes. IUI 2016.

Roemmele and Gordon (2015). Creative Help: A Story Writing Assistant. ICIDS 2015.

Gordon and **Roemmele** (2014). An Authoring Tool for Movies in the Style of Heider and Simmel. ICIDS 2014.

Roemmele, Archer-McClellan, and Gordon (2014). Triangle Charades: A Data-Collection Game for Recognizing Actions in Motion Trajectories. IUI 2014.

Roemmele, Bejan, and Gordon (2011). Choice of Plausible Alternatives: An Evaluation of Commonsense Causal Reasoning. 10th Symposium on Logical Formalizations of Commonsense Reasoning.

TECHNICAL SKILLS

Expertise in Python, statistical/machine learning libraries (Keras, Theano, Scikit-learn, TensorFlow), and natural language processing libraries (spaCy, gensim, NLTK).

Experience with Java, database systems (SQL, FileMaker), front-end web development (Javascript/HTML/CSS); web server development (CherryPy, Flask), and document markup languages (XML, LaTeX).

AWARDS/ SERVICE

Gave an invited talk, "Automated Assistance for Story Writing: Exploring a New Generation Paradigm", at the Storytelling Workshop at ACL 2019.

Instructor for the course "Siri, What is Natural Language Processing?" in spring 2019 at the Institute for Educational Advancement in Pasadena, CA. This 10-week course introduced linguistics and natural language processing to students ages 12-14.

Presenter and mentor to students at two events organized by LingHacks, which brings together high school students interested in the intersection of math and language.

Communications chair for the 2016 ICIDS conference.

PC member for several conferences including NAACL, ACL, EMNLP, and ICIDS.