Thomas Manzini

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EDUCATION

Carnegie Mellon University, Pittsburgh, PA
    MS - Language Technologies & Computer Science, 2018
    Honors: CMU Research Fellowship
                   Awarded full tuition coverage & monthly stipend (2016 - 2018)
    Teaching: Teaching Assistant Introduction to Deep Learning
                   Provided multiple guest lectures, managed grading for a 192 student class (2018)
                   CMU Data Science Seminar Speaker – Presented to 2019 CMU Data Science Seminar (2017)

Rensselaer Polytechnic Institute, Troy, NY
    BS, Computer Science, *Cum Laude*, 2016
    Honors: Stanley I. Landgraff '46 Award - Excellence in leadership and academic achievement (2016)
                  President, Upsilon Pi Epsilon Computer Science Honor Society (2014 - 2016)
                  Phalanx Senior Leadership Honor Society (2015 - 2016)
                  Dean's List (2012, 2013, 2014, 2015, 2016)
    Teaching: RPI Science Ambassadors (2014 - 2016)
                   Selected to teach STEM topics to middle schoolers.
                  Undergraduate Teaching Assistant Introduction to Computer Science (2016)
                  Undergraduate Teaching Assistant Introduction to Algorithms (2013, 3 class sections in 2014)
                  Undergraduate Teaching Assistant Introduction to Open Source Software (2015 - 2016)

PUBLICATIONS

Manzini & Lim, et al. "Black is to Criminal as Caucasian is to Police: Detecting, Evaluating and Removing Multi-Class Bias in Word Embeddings". NAACL '19. Proceedings of the North American Chapter of the Association for Computational Linguistics. Accepted, In Press. **(Oral)**

Pham, Liang, **Manzini**, et al. "Found in Translation: Learning Robust Joint Representations by Cyclic Translations Between Modalities". AAAI '19. Proceedings of the 33rd conference of the Association for the Advancement of Artificial Intelligence. February 2019. **(Poster)**

Pham, Liang, **Manzini**, et al. "Learning Robust Joint Representations for Multimodal Sentiment Analysis". NeurIPS 2018 Workshop on Interpretability and Robustness in Audio, Speech & Language. December 2018. **(Oral)**

Manzini et al. "Toward Improving the Intelligibility of Black-Box Speech Synthesizers in Noise". *SPECOM '18*. Proceedings of the 20th conference on Speech and Computer. September 2018. *(Oral)*

Manzini, Chandu & Singh. "Language Informed Modeling of Code-Switched Text". *ACL '18*. Proceedings of the 56th conference of the Association of Computational Linguistics, Workshop on Computational Approaches to Linguistic Code-switching. July 2018. *(Poster)*

Manzini & Pham, et al. "Seq2Seq2Sentiment: Multimodal Sequence to Sequence Models for Sentiment Analysis". *ACL '18*. Proceedings of the 56th conference of the Association of Computational Linguistics, Workshop on Human Multimodal Language. July 2018. *(Oral)*

Prabhumoye, Botros, Chandu, Choudhary, Keni, Malaviya, **Manzini** et al. "Building CMU Magnus from User Feedback". *Alexa Prize '17*. In AWS re:INVENT 2017. November 2017. *(Paper)*

Manzini & Ravichander et al. "How Would You Say It? Eliciting Lexically Diverse Dialogue for Supervised Semantic Parsing". *SIGdial '17*. Proceedings of the 18th SIGdial Conference. August 2017. *(Poster)*

Manzini et al. "A Play on Words: Using Cognitive Computing as a Basis for AI Solvers in Word Puzzles". *Journal of Artificial General Intelligence*. Volume 6, Issue 1, Pages 111–129, December 2015. *(Paper)*

RESEARCH

Professor L.P. Morency, Carnegie Mellon University – Language Technologies Institute
Multi-Modal Sentiment Analysis (2017 - 2019)
- Developed novel neural architecture that achieves new state-of-the-art performance on multiple multi-modal sentiment analysis datasets (CMU-MOSI, ICT-MMMO, YouTube).

Professor Eric Nyberg, Carnegie Mellon University – Language Technologies Institute
Boeing: Smart Fault Isolation Manual (2017 - 2018)
- Mentored Boeing AI Development (AIMS) team members on best practices for search, question answering, and information retrieval systems.
- Constructed QA pipeline to recommend repair procedures based on user queries.
- Constructed sequence to sequence machine learning models to learn recommended maintenance actions based on reported faults in Boeing 787s.

DARPA: Data Driven Discovery of Models (summer 2017)
- Constructed dialog system to allow domain experts to interact with large scale datasets through dialog and data visualizations.

Bosch: Ubiquitous Personal Assistant (2016 - 2017)
- Constructed a sematic parsing methodology for the development of a ubiquitous dialog agent spanning multiple smart home appliances.
- Developed novel approach for collection of crowdsourced data for the construction of semantic parsers.

Professor Alan Black, Carnegie Mellon University – Language Technologies Institute
Evaluating and Removing Multi-Class Bias in Word Embeddings (2018 - 2019)
- Developed novel method for detecting, evaluating and removing instances of multiclass bias in word embeddings.

Toward Improving the Intelligibility of Black-Box Speech Synthesizers in Noise (2017 - 2018)
- Proposed, researched, and presented novel work for using language level features to improve the intelligibility of speech in noise.

CMU Magnus: Amazon Alexa Prize Team (2016 - 2017)
- Developed a social chatbot to engage users on Amazon's *Alexa* platform.
- Proposed and developed a community driven dialog module for automated question answering.
- Developed a dialog state transition model for managing dialog flow over predefined topics.

Professor James Hendler, Rensselaer Polytechnic Institute – Computer Science Department
Syllabub (2015 - 2016)
- Proposed, researched, and presented novel work involving using the *IBM Watson* pipeline and natural language processing to solve clues from Syllacrostic puzzles with >95% accuracy.

Debate Me (2016)
- Explored the effectiveness of "skip-thought" neural models for use in dialog agents.
- Collected and curated a corpus of presidential debate transcripts in order to train models.

Jeopardy! Reversed (2014 - 2015)
- Utilized NLP techniques to automatically generate *Jeopardy!* questions based on song lyrics.

Professor Mei Si, Rensselaer Polytechnic Institute – Cognitive Science Department
RPI Social Robotics (2013 - 2014)
- Developed an interactive dialogue driven campus tour guide for use on a *RoboKind Zeno* robot.

Lost Manuscript II (2013)
- Contributed to the development of an interactive story for players to practice Chinese speaking skills with virtual agents.

Professor Ananda Gunawardena, Carnegie Mellon University – School of Computer Science
Classroom Salon research project (summer 2011)

EMPLOYMENT

Microsoft, Cambridge, MA
>Software Engineer, Microsoft AI Development Acceleration Program (summer 2018 - present)
>- Developed learned representations for commands in the Microsoft Office.
>- Performed cluster analysis of users and user behavior in Microsoft Office.
>- Applied various deep learning models to fuse features from multiple modalities for classification.
>- Developed novel Neural Architecture Search methods for development of deep learning models.

Pinterest, San Francisco, CA
>Intern – Software Engineer, Ads Ranking Team (summer 2016)
>- Developed an automated data workflow for processing large scale refunds for advertisers who are billed through both credit cards and invoices.
>- Data workflow written in the Hive query language and Python executed on a MapReduce framework.

LinkedIn, Mountain View, CA
>Intern – Software Engineer, Digits – Growth and Lifecycle Team (summer 2015)
>- Developed backend Hadoop flow for phone collection splash screen and desktop banner.
>- Developed parallelizable backend code in Java to map LinkedIn user names to phone numbers for name checking during an address book import.

Bloomberg L.P., New York, NY
>Consultant – Software Engineer, Fixed Income & Relative Value/Search Team (fall 2014 - spring 2015)
>- Invited to become part-time consultant to continue work following summer internship.
>Intern – Software Engineer, Fixed Income & Relative Value/Search Team (summer 2014)
>- Primary fixed income project selected for presentation to Bloomberg Co-Founder, Thomas Secunda.
>- Secondary fixed income project selected for presentation to Michael Bloomberg.
>- Developed Advanced Data Analysis, a pivot table toolset for performing "groupbys" and aggregations on all fixed income securities using Python and Cython.

Hover Inc., Los Altos, CA
>Intern – Software Engineer, Prometheus Project (summer 2013)
>- Developed heat-map based point cloud visualization module in Python.
>- Translated code from C++ to Python for "Moneyshot" visualization.

MGM Resorts International, Las Vegas, NV
>Intern – Software Engineer, Multi-Media Department (summer 2012)

Microsoft Innovation Center/Linq360, Las Vegas, NV
>Intern – Information Technology Department (summer 2011)

VOLUNTEER & COMMUNITY SERVICE

CMU Masters Experience Council – School of Computer Science (2017 - 2018)
CMU Dean's Masters Advisory Council – School of Computer Science (2016 - 2018)
Edgewood Fire Department, Pittsburgh, PA (2017 - 2018)
Carnegie Mellon University Emergency Medical Services, Pittsburgh, PA (2016 - 2018)
RPI Ambulance, Troy, NY (2012 - 2016)
>Positions Held: Captain (Elected 2014 - 2016), Training Committee Chair (2014), Scheduling Coordinator (2012)
>Ranks achieved: Crew Chief (Trainer), Driver (Trainer), Event EMS Supervisor, Duty Supervisor
Co-Founder, RPI Science Undergraduate Council (2015 - 2016)
President's Lifetime Achievement Award (2015)
>Awarded by President Obama for more than 4,000 hours of community service.

CERTIFICATIONS
NAUI Rescue SCUBA Diver (2018 - ongoing)
PA Emergency Medical Technician–Basic (2017 - 2019)
NY Emergency Medical Technician–Basic (2013 - 2019)
VFIS Emergency Vehicle Operator Certification (2016 - 2019)
PA Hazardous Materials Technician Certification (2018 - ongoing)
Fire Fighter 1 Pro-Board, NFPA 1001, Certification (2017 - ongoing)
AHA CPR for Basic Life Support for Healthcare Providers (2012 - 2019)