Andrea Madotto

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EDUCATION

The Hong Kong University of Science and Technology, Hong Kong
Ph.D. candidate in Electronic & Computer Engineering, 2018 - Present GPA: 4.3/4.3

University of Pisa, Italy
Master's Degree in Computer Science, 2015 - 2017 Final mark: 110/110 (Honours)

SELECTED PUBLICATIONS

[**ACL2019**] Chien-Sheng Wu, *Madotto, A.*, Ehsan Hosseini-Asl, Caiming Xiong, Richard Socher, Pascale Fung. Transferable Multi-Domain State Generator for Task-Oriented Dialogue Systems. Accepted at ACL 2019, **Oral and Outstanding Award (Top 0.1% of the submission)**.
Link: https://www.aclweb.org/anthology/P19-1078.

[**EMNLP2019**] Zihan Liu, Jamin Shin, Yan Xu, Genta Indra Winata, Peng Xu, *Madotto, A.* and Pascale Fung. Zero-shot Cross-lingual Dialogue Systems with Transferable Latent Variables. Accepted at EMNLP 2019.

[**EMNLP2019**] Zhaojiang Lin, *Madotto, A.*, Jamin Shin, Peng Xu and Pascale Fung. MoEL: Mixture of Empathetic Listeners. Accepted at EMNLP 2019.

[**EMNLP2019**] Peng Xu, Chien-Sheng Wu, *Madotto, A.* and Pascale Fung. Clickbait? Sensational Headline Generation with Auto-tuned Reinforcement Learning. Accepted at EMNLP 2019.

[**ACL2019**] *Madotto, A.*, Zhaojiang Lin, Chien-Sheng Wu, Pascale Fung. Personalizing Dialogue Agents via Meta-Learning. Accepted at ACL 2019. Link: https://www.aclweb.org/anthology/P19-1542.

[**NeurIPS-IRASL2018**] Jamin Shin, *Madotto, A.*, Fung, P. Interpreting Word Embeddings with Eigenvector Analysis. NeurIPS IRASL Workshop 2018, **Oral**.
Link: https://openreview.net/forum?id=rJfJiR5ooX.

[**ACL2018**] *Madotto, A.*, Wu, CS., Fung, P. Mem2Seq: Effectively Incorporating Knowledge Bases into End-to-End Task-Oriented Dialog Systems. Accepted at ACL 2018.
Link: http://aclweb.org/anthology/P18-1136.

[**ICASSP2018**] Wu, CS., *Madotto, A.*, Winata, GI., Fung, P. End-to-End Dynamic Query Memory Network for Entity-Value Independent Task-Oriented Dialog. International Conference on Acoustics, Speech and Signal Processing ICASSP 2018.
Link: https://ieeexplore.ieee.org/abstract/document/8461426.

[**Nature SciRep 2016**] *Madotto, A* and Liu, J. Super-Spreader Identification Using Meta-Centrality. **Nature** Scientific Report 6, 38994; DOI: 10.1038/srep38994 2016.

Full list available in Google Scholar or my personal website.

EXPERIENCE

Data Science Intern UberAI
Jun 2019 – Sept 2019 San Francisco, CA
Conducting research on text-based games (i.e. TextWorld) using reinforcement learning (RL) algorithms. I am mainly worked on exploration-based algorithms (e.g. Go-Explore) for improving RL performance in large action space environments.

Research Assistant HKUST
Sept 2017 – Sept 2018 Hong Kong, HK
Conducted research on Deep Learning Algorithms at the HKUST Centre for Artificial Intelligence Research (CAiRE). I mainly worked on building end-to-end architectures to model dialogue responses. Especially:

- End-to-End dialogue systems using Memory Augmented Neural Networks

- Multi-Task learning for Emotion Representation and Code-Switching

Teaching Assistant HKUST
Feb 2018 – May 2018 Hong Kong, HK
TA of Building Interactive Intelligent Systems (a.k.a. Deep Learning for NLP), join course of the B.Sc. in CSE and ECE held in the The Hong Kong University of Science and Technology.
- taught and prepared most of the tutorial classes and exercises
- prepared several lectures, in particular RNN (Seq2Seq etc.) and Word Embedding

PROFESSIONAL ACTIVITIES

Reviewer North American Association for Computational Linguistics (NAACL 2019), Empirical Methods in Natural Language Processing (EMNLP 2019), Association for Computational Linguistics (ACL 2019), AAAI Conference on Artificial Intelligence (AAAI 2020)

SKILLS

Theoretical Background: Machine Learning • Deep Learning • Natural Language Processing • Algorithms • Statistical Learning • Optimization Methods
DL and ML Libraries: Pytorch, Tensorflow, Keras, Scipy, Numpy, Pandas, SciKit learn
Programming: Python • C++ • LaTeX• JavaScript • Matlab (basic) • Java (basic)
Data bases: SQL • MySQL • PostgreSQL • Xquery • neo4j
Languages: Italian (mother tongue) • English • Chinese (basic)

THESIS

Question Dependent Recurrent Entity Network for Question Answering
Facility location problem in a bi-dimensional mesh

PROJECTS

Jacobi Method: A parallel version of the Jacobi Iterative Method.
- implemented three versions of the code using C++: sequential, Pthread based, and using FastFlow library
- evaluation conducted using different metrics such as Completion Time, Scalability, Speed up, and Efficiency.
- conducted experiments using a Xeon Phi coprocessor (60 cores 4 contexts)

PythonITA: A fork of the Cpython repository to use Italian keywords as native constructors.
- modified the language interpreter, such as: the EBNF grammar (i.e. adding new production), the AST, and the built-in functions.
- modified the IDLE to highlight and predict the new added words.

Dynamic HTML render and a Recursive Descent Parser: Implementation of a Web Components library similar to React.JS.
- implemented an efficient representation of a Virtual DOM
- optimised the DOM element render in the HTML page.
- implemented a recursive descent parser to express components in JSX.

Others have a look on my personal website and my GitHub.

VOLUNTEER ACTIVITIES

Mentor CODERDOJO
Feb 2016 – Jun 2017 Pisa, IT
A volunteering activity to teach programming languages to children (mostly Scratch and Python). Pisa CoderDojo is part of the CoderDojo international initiative. I was also one of the organizers of the first Toscana DojoCon held in Pisa.