

Aaron M. Mueller

CONTACT INFORMATION	Center for Language & Speech Processing Johns Hopkins University 3400 N. Charles St., Hackerman 319 Baltimore, MD 21218-2608 (U.S.A.)	<i>E-mail:</i> amueller@jhu.edu <i>Website:</i> aaronmueller.github.io <i>Code:</i> github.com/aaronmueller <i>Phone:</i> +1 (502) 550-4938
RESEARCH INTERESTS	<ul style="list-style-type: none">• Multilingual natural language processing• Model probing and interpretability• Machine translation	
EDUCATION	Johns Hopkins University , Baltimore, MD Ph.D. student, Computer Science. M.S.E., Computer Science. GPA: 3.9/4.0. <i>Advisors:</i> Mark Dredze, David Yarowsky. University of Kentucky , Lexington, KY B.S., Computer Science. Honors. B.S., Linguistics. Honors. GPA: 4.0/4.0. <i>Summa cum laude.</i> <i>Thesis:</i> Neural Machine Translation for Canadian French.	August 2018 - Present May 2020 May 2018 May 2018
RESEARCH EMPLOYMENT	Johns Hopkins University , Baltimore, MD Center for Language & Speech Processing <i>Research Assistant</i> <i>Advisors:</i> Mark Dredze, David Yarowsky – Research in probing pre-trained multilingual neural models for linguistic knowledge, multilingual text analysis, and massively multilingual NLP applications (e.g., machine translation). BBN Technologies , Cambridge, MA Analytics & Machine Intelligence <i>Research Intern</i> <i>Supervisors:</i> Roger Bock, Ilana Heintz – Research in word alignment, entity linking, and improving the speed-accuracy trade-off in neural machine translation. University of Massachusetts Amherst , Amherst, MA Statistical Social Language Analysis Lab <i>Research Intern</i> <i>Supervisor:</i> Brendan O'Connor – Research in entity-event extraction. – Integrated entity mention and relation systems into pre-existing sentence-level model. Also integrated document-level information (e.g., noun coreferences) as features. Johns Hopkins University , Baltimore, MD Center for Language & Speech Processing <i>Research Intern</i> <i>Supervisor:</i> David Yarowsky – Research in statistical machine translation for low-resource languages. – Implemented a lemma-based English-Uyghur translation model, built a morphological generator for Crimean Tatar, and created parsers to extract translation tables from foreign editions of Wiktionary.	August 2018 - Present May - August 2019 May - August 2017 May - August 2016

PUBLICATIONS REFEREED CONFERENCE PROCEEDINGS

1. **Aaron Mueller**, Garrett Nicolai, Panayiota Petrou-Zeniou, Natalia Talmina, and Tal Linzen. *Cross-Linguistic Syntactic Evaluation of Word Prediction Models*. Association for Computational Linguistics (ACL), 2020.
2. **Aaron Mueller**, Garrett Nicolai, Arya D. McCarthy, Dylan Lewis, Winston Wu, and David Yarowsky. *An Analysis of Massively Multilingual Neural Machine Translation for Low-Resource Languages*. Language Resources and Evaluation Conference (LREC), 2020.
3. Arya D. McCarthy, Rachel Wicks, Dylan Lewis, **Aaron Mueller**, Winston Wu, Oliver Adams, Garrett Nicolai, Matt Post, and David Yarowsky. *The Johns Hopkins University Bible Corpus: 1600+ Tongues for Typological Exploration*. Language Resources and Evaluation Conference (LREC), 2020.
4. Garrett Nicolai, Dylan Lewis, Arya D. McCarthy, **Aaron Mueller**, Winston Wu, and David Yarowsky. *Fine-Grained Morphosyntactic Analysis and Generation Tools for More Than One Thousand Languages*. Language Resources and Evaluation Conference (LREC), 2020.
5. Marten van Schijndel, **Aaron Mueller**, and Tal Linzen. *Quantity Doesn't Buy Quality Syntax with Neural Language Models*. Empirical Methods in Natural Language Processing (EMNLP), 2019.
6. Arya D. McCarthy, Winston Wu, **Aaron Mueller**, Bill Watson, and David Yarowsky. *Modeling Color Terminology Across Thousands of Languages*. Empirical Methods in Natural Language Processing (EMNLP), 2019.

REFEREED WORKSHOP PROCEEDINGS

7. **Aaron Mueller*** and Yash Kumar Lal*. *Sentence-Level Adaptation for Low-Resource Neural Machine Translation*. Machine Translation Summit (MTSummit) Workshop on Technologies for Machine Translation of Low-Resource Languages (LoResMT), 2019. [*Equal contribution]

PRE-PRINTS AND NON-REFEREED PAPERS

8. **Aaron Mueller**, Zach Wood-Doughty, Silvio Amir, Mark Dredze, and Alicia Nobles. *Demographic Representation and Collective Storytelling in the Me Too Twitter Hashtag Activism Movement*. arXiv pre-print, 2020. In submission to Conference on Computer-Supported Cooperative Work and Social Computing (CSCW), 2021.
9. **Aaron Mueller***, Alexandra DeLucia*, Xiang Lisa Li, and João Sedoc. *Decoding Methods for Neural Narrative Generation*. arXiv pre-print, 2020. In submission to North American Chapter of the Association for Computational Linguistics (NAACL), 2021. [*Equal contribution]
10. **Aaron Mueller**, Mark Richard Lauersdorf, Kevin McGowan, and Ramakanth Kavuluru. *Neural Machine Translation for Canadian French*. Undergraduate thesis, 2018.

FELLOWSHIPS	National Science Foundation Graduate Research Fellow	2018 - 2023
AND AWARDS	Gaines Fellow , University of Kentucky	2016 - 2018
	Patterson Scholar , University of Kentucky	2014 - 2018
	Raymond F. Betts Scholar , University of Kentucky	2017
	Goldwater Scholarship (Honorable Mention)	2017
	Phi Beta Kappa	2017
	Linguistics Research Award , University of Kentucky	2016
	National Merit Semifinalist	2014

TEACHING	Johns Hopkins University , Baltimore, MD
EXPERIENCE	<i>Teaching Assistant</i> – Machine Learning: AI System Design & Development, Mathias Unberath. Spring 2020.

COMPUTING	Programming:
SKILLS	– Languages: Python, C++, C, HTML, CSS, Javascript, bash. – Machine Learning Toolkits: PyTorch (incl. huggingface, fairseq, sockeye), Keras, TensorFlow. – Version Control: DVCS (Git, Bitbucket). – Development Environments: Vim, VSCode.

Linguistic Tools:
Praat, AntConc, QGIS, Audacity.

LANGUAGES	English (native language), French (B2, Canadian). Experience with Chatino and Uyghur through research.
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