

# Maria Ryskina

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<https://ryskina.github.io>

## EDUCATION

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<b>Carnegie Mellon University</b> <i>Ph.D., Language and Information Technologies</i>	Pittsburgh, PA, USA Aug 2016 – Sep 2022
<b>Skolkovo Institute of Science and Technology</b> <i>M.Sc., Information Technology, with honors</i>	Moscow, Russia Aug 2014 – Jul 2016
<b>Moscow Institute of Physics and Technology</b> <i>M.Sc., Applied Mathematics and Physics, with honors</i> <i>B.Sc., Applied Mathematics and Physics, with honors</i>	Moscow, Russia Sep 2014 – Jun 2016 Sep 2010 – Jun 2014

## RESEARCH EXPERIENCE

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<b>Massachusetts Institute of Technology</b> <i>Postdoctoral Associate, McGovern Institute for Brain Research</i>	Cambridge, MA, USA Oct 2022 – present
<ul style="list-style-type: none"><li>· Studying language processing capabilities and confounds in machine learning models and in the brain</li><li>· Advisors: Dr. Evelina Fedorenko, Dr. Kyle Mahowald</li></ul>	
<b>Carnegie Mellon University</b> <i>Graduate Research Assistant, Language Technologies Institute</i>	Pittsburgh, PA, USA Aug 2016 – Sep 2022
<ul style="list-style-type: none"><li>· Developed structured unsupervised probabilistic models for character-level transduction problems [C3, W4] and for applications in digital humanities [C1]</li><li>· Modeled how new words have emerged in historical corpora [C2] and on social media, and how morphological inflection models adapt to new words</li><li>· Thesis: “Learning Computational Models of Non-Standard Language” [T1]</li><li>· Advisors: Dr. Matthew R. Gormley, Dr. Eduard Hovy, Dr. Taylor Berg-Kirkpatrick</li></ul>	
<b>DiDi Labs</b> <i>Research Intern</i>	Remote May 2020 – Aug 2020
<ul style="list-style-type: none"><li>· Learned embeddings of number tokens from mathematical sequences and probed them for number-theoretic knowledge [W5, P2]</li><li>· Trained task-oriented reinforcement learning agents in a self-play setting [X1, P1]</li><li>· Mentor: Dr. Kevin Knight</li></ul>	
<b>Massachusetts Institute of Technology</b> <i>Visiting Graduate Student, CSAIL Infolab</i>	Cambridge, MA, USA Sep 2015 – Jan 2016
<ul style="list-style-type: none"><li>· Used visual representations of text (sampled from a video captioning model) to detect entailment.</li><li>· Mentors: Dr. Boris Katz, Dr. Andrei Barbu</li></ul>	

Moscow Institute of Physics and Technology & Dorodnicyn Computing Centre of RAS      Moscow, Russia  
Undergraduate Student, Dept. of Control and Applied Mathematics      Sep 2012 – Jun 2014

- Designed regularizers for topic models towards stable convergence to an interpretable solution.
- Advisor: Dr. Konstantin Vorontsov

## AWARDS AND HONORS

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Outstanding Reviewer Award, Annual Meeting of the ACL	2023
Best Paper Award, ACM Conference on Fairness, Accountability, and Transparency Awarded for “Queer In AI: A Case Study in Community-Led Participatory AI”	2023
Diverse Intelligences Summer Institute Fellowship Templeton World Charity Foundation	2021
Skoltech Academic Excellence Award, Russia	2016
State Academic Scholarship, Russia	2013 – 2014
Foundation for the Development of Innovative Education Scholarship, Russia	2010 – 2012

## PUBLICATIONS

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\* denotes equal contribution

### JOURNAL ARTICLES

- [J1] [A taxonomy and review of generalization research in NLP](#)  
D. Hupkes *et al.*, including M. Ryskina  
*Nature Machine Intelligence* 5(10), 2023.

### CONFERENCE PROCEEDINGS

- [C6] [Queer In AI: A Case Study in Community-Led Participatory AI](#)  
Organizers of Queer in AI, including M. Ryskina  
*ACM Conference on Fairness, Accountability, and Transparency (FAccT)*, 2023.
- [C5] [UniMorph 4.0: Universal Morphology](#)  
K. Batsuren\*, O. Goldman\* *et al.*, including M. Ryskina  
*Language Resources and Evaluation Conference (LREC)*, 2022.
- [C4] [NoiseQA: Challenge Set Evaluation for User-Centric Question Answering](#)  
A. Ravichander, S. Dalmia, M. Ryskina, F. Metze, E. Hovy, A. W. Black  
*Conference of the European Chapter of the Association for Computational Linguistics (EACL)*, 2021.
- [C3] [Phonetic and Visual Priors for Decipherment of Informal Romanization](#)  
M. Ryskina, M. R. Gormley, T. Berg-Kirkpatrick  
*Annual Meeting of the Association for Computational Linguistics (ACL)*, 2020.
- [C2] [Where New Words Are Born: Distributional Semantic Analysis of Neologisms and Their Semantic Neighborhoods](#)  
M. Ryskina, E. Rabinovich, T. Berg-Kirkpatrick, D. R. Mortensen, Y. Tsvetkov  
*Annual Meeting of the Society for Computation in Linguistics (SCiL)*, 2020.

- [C1] [Automatic Composer Attribution in the First Folio of Shakespeare](#)  
M. Ryskina, H. Alpert-Abrams, D. Garrette, T. Berg-Kirkpatrick  
*Annual Meeting of the Association for Computational Linguistics (ACL)*, 2017.

## WORKSHOP PROCEEDINGS

- [W5] [Learning Mathematical Properties of Integers](#)  
M. Ryskina, K. Knight  
*BlackboxNLP Workshop on Analyzing and Interpreting Neural Networks for NLP*, 2021.
- [W4] [Comparative Error Analysis in Neural and Finite-state Models for Unsupervised Character-level Transduction](#)  
M. Ryskina, E. Hovy, T. Berg-Kirkpatrick, M. R. Gormley  
*SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology*, 2021.
- [W3] [SIGMORPHON 2021 Shared Task on Morphological Reinflection: Generalization Across Languages](#)  
T. Pimentel<sup>\*</sup>, M. Ryskina<sup>\*</sup> et al.  
*SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology*, 2021.
- [W2] [OPERA: Operations-oriented Probabilistic Extraction, Reasoning, and Analysis \(2019\)](#)  
E. Hovy et al., including M. Ryskina  
*Text Analysis Conference (TAC)*, 2019.
- [W1] [OPERA: Operations-oriented Probabilistic Extraction, Reasoning, and Analysis \(2018\)](#)  
E. Hovy et al., including M. Ryskina  
*Text Analysis Conference (TAC)*, 2018.

## THESES

- [T1] [Learning Computational Models of Non-Standard Language](#)  
M. Ryskina  
*Ph.D. dissertation*, Carnegie Mellon University, 2022.

## PATENTS AND PATENT APPLICATIONS

- [P2] US Patent 11460982, [Number embedding application system](#)  
K. Knight, M. Ryskina  
Oct 4, 2022
- [P1] US Patent Application 17104137, [Self-play to improve task-oriented dialog systems and methods](#)  
K. Knight, M. Ryskina, A. Arkhangorodsky, A. Nagesh, S. Fang  
May 26, 2022

## MAGAZINE ARTICLES

- [M1] [Queer in AI](#)  
Organizers of Queer in AI, including M. Ryskina  
*XRDS: Crossroads, The ACM Magazine for Students*, 28(4), 2022.

## PREPRINTS

- [X1] [Two Approaches to Building Collaborative, Task-Oriented Dialog Agents through Self-Play](#)  
A. Arkhangorodsky, S. Fang, V. Knight, A. Nagesh, M. Ryskina, K. Knight  
*Preprint*, 2021.

## INVITED TALKS

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<b>Learning Computational Models of Non-Standard Language</b> LCC Lab, Department of Computer Science, University of Toronto	Mar 2022
<b>Learning Computational Models of Non-Standard Language</b> EvLab, Department of Brain and Cognitive Sciences, MIT	Mar 2022
<b>Learning Computational Models of Non-Standard Language</b> CLunch Seminar Series, Department of Computer and Information Science, University of Pennsylvania	Feb 2022
<b>Learning Computational Models of Non-Standard Language</b> MCQLL Lab, Department of Linguistics, McGill University	Feb 2022
<b><a href="#">Romanization with Friends: Deciphering Informally Romanized Text</a></b> NLP With Friends Seminar Series	Nov 2021
<b>Unsupervised Decipherment of Informal Romanization</b> NLPhD Speaker Series, Department of Language Science and Technology, Saarland University	Jun 2021
<b><a href="#">Informal Romanization across Languages and Scripts</a></b> SIGTYP Lecture Series	Jun 2021

## TEACHING

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TA and Guest lecturer for <a href="#">CMU 11-711: Algorithms for NLP</a> . Instructor: Prof. Yulia Tsvetkov	Fall 2018
TA for <a href="#">CMU 11-711: Algorithms for NLP</a> . Instructor: Prof. Taylor Berg-Kirkpatrick.	Fall 2017

## STUDENTS MENTORED

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Ashley Malkin, high school intern, MIT	Jul 2023 – present
Sahal Ahmed, undergraduate student, MIT	Sep 2023 – present

## SERVICE

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### Organizing and professional service:

- Core organizer at [Queer in AI](#), 2022–present
- Co-organizer for the [Queer in AI](#) workshop at NAACL 2022, ACL 2023
- Co-organizer for SIGMORPHON Shared Task 0: Generalization in Morphological Inflection Generation, 2021
- Co-host for SIGTYP Lecture Series, 2021

### Area chairing:

- Action Editor for ACL Rolling Review, November 2023 / Area Chair, Interpretability track, NAACL 2024
- Action Editor for ACL Rolling Review, October 2023 / Area Chair, Interpretability track, EACL 2024

### Reviewing (journal articles):

- Cognitive Science (2021)

- Review of General Psychology (2021)

**Reviewing (conference proceedings):**

- Annual Meeting of the Association for Computational Linguistics (ACL 2021, 2023)
- Conference of the European Chapter of the Association for Computational Linguistics (EACL 2021, 2023)
- SIGNLL Conference on Computational Natural Language Learning (CoNLL 2020, 2021, 2023)
- Conference on Empirical Methods in Natural Language Processing (EMNLP 2018, 2020, 2021, 2022)
- ACL Rolling Review (ARR 2021, 2022)

**Reviewing (workshop proceedings):**

- GenBench Workshop on Generalisation (Benchmarking) in NLP (EMNLP 2023)
- SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology (ACL 2023)
- CAWL Workshop on Computation and Written Language (ACL 2023)
- Queer in AI (ACL 2023, NAACL 2022)
- Student Research Workshop (ACL 2020, ACL 2021, NAACL 2021, AACL 2020)
- Human And Model in the Loop Evaluation and Training Strategies (NeurIPS 2020)

**Volunteering and community service:**

- Co-organizer for oSTEM/Queer in AI Graduate School Application Review and Fee Aid Programs, 2021–2024
- Student reviewer for CMU LTI Graduate Admissions, 2021
- Mentor for CMU SCS Graduate Application Support Program, 2020–2021
- Mentor for CMU LTI Peer Mentoring Program for new graduate students, 2021
- Mentor for CMU AI Mentoring Program for undergraduates from underrepresented groups, 2020