

Roy Schwartz, Curriculum Vitae, May 2020

Contact Information

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Academic Positions

Assistant Professor, Hebrew University of Jerusalem	2020–
Research Scientist, Allen Institute for Artificial Intelligence	2019–2020
Postdoctoral Scholar, University of Washington	2016–2020
Host: Prof. Noah A. Smith	
Postdoctoral Scholar, Allen Institute for Artificial Intelligence	2016–2019

Education

The Hebrew University of Jerusalem	2011–2016
Ph.D., School of Computer Science and Engineering	
Advisor: Prof. Ari Rappoport	
Thesis title: “Pattern-Based Methods for Improved Lexical Semantics and Word Embeddings”	
The Hebrew University of Jerusalem	2009–2011
M.Sc. magna cum laude in Computer Science	
Advisor: Prof. Ari Rappoport	
Final M.Sc. grade: 97.4/100	
The Hebrew University of Jerusalem	2005–2008
B.Sc. magna cum laude in Computer Science and Cognitive Science	
Member of the Amirim program for outstanding undergraduate students of sciences	
Course average: 96.1/100	

Awards and Scholarships

PAPER AWARDS

Best paper award ; Workshop on Representation Learning for NLP (RepL4NLP)	2018
Best performing system; Workshop on Linking Models of Lexical, Sentential and Discourse-Level Semantics (LSDSem) shared task	2017

GRANTS

NVIDIA’s GPU grant	2017, 2018
University of Washington Computer Science postdoc research award	2017
Pascal travel grant	2011, 2012

STUDENT AWARDS

Hoffman leadership and responsibility program for outstanding Ph.D. students	2011–2014
Liss foundation award for outstanding Ph.D. students	2013
Leibniz award for excellent M.Sc. students in Computer Science	2011
Faculty of Science prize for excellent M.Sc. students based on academic achievements	2010, 2011
School of Computer Science scholarship for outstanding M.Sc. students	2010
Dean prize for academic achievements	2006

OUTSTANDING REVIEWER

North American Chapter of the Association of Computational Linguistics (NAACL)	2018
Annual Meeting of the Association of Computational Linguistics (ACL)	2014, 2015, 2017

TEACHING AWARDS

Ranked first in the School of Computer Science student evaluation survey	2012
Faculty of Science excellent teachers list based on student evaluation	2010

Journal Articles

- [1] **R. Schwartz**, D. Dodge, N. A. Smith and O. Etzioni. *Green AI*. To Appear in Communications of the ACM (CACM 2020).

Refereed Conference Publications

Note: Conferences are the main publication forum in Natural Language Processing. The leading conferences of the field (e.g., ACL, NAACL, EMNLP, CoNLL and COLING) are highly competitive with acceptance rates typically no higher than 25%. All papers below were peer-reviewed.

LONG PAPERS

- [2] **R. Schwartz**, G. Stanovsky, S. Swayamdipta, J. Dodge, and N. A. Smith, *The Right Tool for the Job: Matching Model and Instance Complexities*. Annual Meeting of the Association of Computational Linguistics (ACL 2020).
- [3] H. Peng, **R. Schwartz**, D. Li, and N. A. Smith, *A Mixture of $h-1$ Heads is Better than h Heads*. Annual Meeting of the Association of Computational Linguistics (ACL 2020).
- [4] W. Merrill, G. Weiss, Y. Goldberg, **R. Schwartz**, N. A. Smith, and E. Yahav, *A Formal Hierarchy of RNN Architectures*. Annual Meeting of the Association of Computational Linguistics (ACL 2020).
- [5] J. Dodge, S. Gururangan, D. Card, **R. Schwartz** and N. A. Smith, *Show Your Work: Improved Reporting of Experimental Results*. Conference on Empirical Methods in Natural Language Processing (EMNLP 2019).
- [6] M. E. Peters, M. Neumann, R. Logan, **R. Schwartz**, V. Joshi, S. Singh and N. A. Smith, *Knowledge Enhanced Contextual Word Representations*. Conference on Empirical Methods in Natural Language Processing (EMNLP 2019).
- [7] H. Peng, **R. Schwartz**, S. Thomson and N. A. Smith, *Rational Recurrences*. Conference on Empirical Methods in Natural Language Processing (EMNLP 2018).
- [8] R. Zellers, Y. Bisk, **R. Schwartz** and Y. Choi, *SWAG: A Large-Scale Adversarial Dataset for Grounded Commonsense Inference*. Conference on Empirical Methods in Natural Language Processing (EMNLP 2018).
- [9] **R. Schwartz**, S. Thomson and N. A. Smith, *SoPa: Bridging CNNs, RNNs, and Weighted Finite-State Machines*. Annual Meeting of the Association of Computational Linguistics (ACL 2018).
- [10] D. Kang, W. Ammar, B. Dalvi, M. van Zuylen, S. Kohlmeier, E. Hovy and **R. Schwartz**, *A Dataset of Peer Reviews (PeerRead): Collection, Insights and NLP Applications*. North American Chapter of the Association of Computational Linguistics (NAACL 2018).
- [11] **R. Schwartz**, M. Sap, Y. Konstas, L. Zilles, Y. Choi and N. A. Smith, *The Effect of Different Writing Tasks on Linguistic Style: A Case Study of the ROC Story Cloze Task*. Conference on Natural Language Learning (CoNLL 2017).
- [12] I. Vulić, **R. Schwartz**, R. Reichart, A. Rappoport and A. Korhonen, *Automatic Selection of Context Configurations for Improved (and Fast) Class-Specific Word Representations*. Conference on Natural Language Learning (CoNLL 2017).
- [13] **R. Schwartz**, R. Reichart and A. Rappoport, *Symmetric Pattern Based Word Embeddings for Improved Word Similarity Prediction*. Conference on Natural Language Learning (CoNLL 2015).
- [14] **R. Schwartz**, R. Reichart and A. Rappoport, *Minimally Supervised Classification to Semantic Categories Using Automatically Acquired Symmetric Patterns*. International Conference on Computational Linguistics (COLING 2014).
- [15] **R. Schwartz**, O. Tsur, A. Rappoport and M. Koppel, *Authorship Attribution of Micro-Messages*. Conference on Empirical Methods in Natural Language Processing (EMNLP 2013).
- [16] **R. Schwartz**, O. Abend and A. Rappoport, *Learnability-Based Syntactic Annotation Design*. International Conference on Computational Linguistics (COLING 2012).

- [17] **R. Schwartz**, O. Abend, R. Reichart and A. Rappoport, *Neutralizing Linguistically Problematic Annotations in Unsupervised Dependency Parsing Evaluation*. Annual Meeting of the Association of Computational Linguistics (ACL 2011).
- [18] J. Dodge, **R. Schwartz**, H. Peng and N. A. Smith, *RNN Architecture Learning with Sparse Regularization*. Conference on Empirical Methods in Natural Language Processing (EMNLP 2019).
- [19] H. Peng, **R. Schwartz** and N. A. Smith, *PaLM: A Hybrid Parser and Language Model*. Conference on Empirical Methods in Natural Language Processing (EMNLP 2019).
- [20] N. Liu, **R. Schwartz** and N. A. Smith, *Inoculation by Fine-Tuning: A Method for Analyzing Challenge Datasets*. North American Chapter of the Association of Computational Linguistics (NAACL 2019).
- [21] S. Gururangan, S. Swayamdipta, O. Levy, **R. Schwartz**, S. Bowman and N. A. Smith, *Annotation Artifacts in Natural Language Inference Data*. North American Chapter of the Association of Computational Linguistics (NAACL 2018).
- [22] **R. Schwartz**, R. Reichart and A. Rappoport, *Symmetric Patterns and Coordinations: Fast and Enhanced Representations of Verbs and Adjectives*. North American Chapter of the Association of Computational Linguistics (NAACL 2016).
- [23] D. Rubinstein, E. Levi, **R. Schwartz** and A. Rappoport, *How Well Do Distributional Models Capture Different Types of Semantic Knowledge?* Annual Meeting of the Association of Computational Linguistics (ACL 2015).

WORKSHOP PAPERS

- [24] **R. Schwartz**, M. Sap, Y. Konstas, L. Zilles, Y. Choi and N. A. Smith, *Story Cloze Task: UW NLP System*. Workshop on Linking Models of Lexical, Sentential and Discourse-Level Semantics (LSDSem 2017). **Best performing system**.
- [25] N. F. Liu, O. Levy, **R. Schwartz**, C. Tan and N. A. Smith, *LSTMs Exploit Linguistic Attributes of Data*. Workshop on Representation Learning for NLP (RepL4NLP 2018). **Best paper award**.

Papers under Review

- [26] J. Dodge, G. Ilharco, **R. Schwartz**, A. Farhadi, H. Hajishirzi and N. A. Smith, *Fine-Tuning Pretrained Language Models: Weight Initializations, Data Orders, and Early Stopping*.

Invited Talks

Green AI

Microsoft, Machine Learning Seminar 04/2020

Green NLP

Berkeley, Natural Language Processing Group Seminar 03/2020

Stanford, Natural Language Processing Group Seminar 03/2020

Google Brain, Natural Language Processing Group Seminar 03/2020

Towards Interpretable Deep Learning for Natural Language Processing

Technion, Computer Science, Electrical Engineering, and Industrial Engineering Colloquia 12/2018

Tel Aviv University, Computer Science and Electrical Engineering Colloquia 12/2018

The Hebrew University, Computer Science Colloquium 12/2018

Weizmann Institute, Machine Learning Seminar 12/2018

Teaching Machine how to Read

Invited Poster, Computing Community Consortium Early Career Researcher Symposium 08/2018

Inductive Bias of Deep Networks through Language Patterns

Google Research Tel-Aviv, Machine Learning Seminar 12/2017

Pattern-Based Solutions to Limitations of Leading Word Embeddings	
University of Pennsylvania, Natural Language Processing Group Seminar	02/2016
Johns Hopkins University, Natural Language Processing Group Seminar	02/2016
University of Washington, Natural Language Processing Group Seminar	02/2016
Automatic Extraction of Semantic Relations from Large Bodies of Text	
Tel Aviv University, Cognitive Neuroscience Group Seminar	12/2015
Word Similarity via Symmetric Patterns	
IBM Research Tel Aviv, Machine Learning and Data Mining Group Seminar	09/2015
Semantic Knowledge Acquisition Using Frequency Based Patterns	
Catalonia-Israel Symposium on Lexical Semantics and Grammatical Structure	02/2015
Acquiring Semantic Knowledge Using Patterns	
Hebrew University, CS Learning Seminar	12/2014
Identifying Authorships of Very Short Texts Using Flexible Patterns	
Intel Inc. Haifa, ICRI-CI Retreat	05/2014
Semantic Representation Using Flexible Patterns	
Berkeley, Natural Language Processing Group Seminar	10/2013
Stanford, Natural Language Processing Group Seminar	10/2013
USC Information Sciences Institute, Natural Language Processing Group Seminar	10/2013
Twitter Inc., Technological Talk	10/2013
Intel Inc. Santa Clara, Natural Language Processing Group Seminar	10/2013
IBM Research Tel Aviv, Machine Learning and Data Mining Group Seminar	10/2013

Professional Activities

AREA CHAIR	ACL; Textual Inference and Other Areas of Semantics	2019, 2020
CONFERENCE PROGRAM COMMITTEE MEMBER	International Conference on Machine Learning (ICML)	2019–2020
	International Conference on Learning Representations (ICLR)	2019–2020
	Annual Meeting of the Association of Computational Linguistics (ACL)	2013–2018
	North American Chapter of the Association of Computational Linguistics (NAACL)	2016–2019
	Conference on Empirical Methods in Natural Language Processing (EMNLP)	2013, 2015–2019
	Neural Information Processing Systems (NIPS)	2018–2019
	Conference on Artificial Intelligence (AAAI)	2018
	Conference on Natural Language Learning (CoNLL)	2016–2018
	Joint Conference on Lexical and Computational Semantics (*SEM)	2018
	European Chapter of the Association of Computational Linguistics (EACL)	2017
JOURNAL REVIEWER	Transactions of the Association for Computational Linguistics (TACL)	2019–2020
	Journal of Artificial Intelligence Research (JAIR)	2017–2018
	Computational Linguistics (CL)	2018
	Natural Language Engineering (NLE)	2017
	Algorithms	2017
WORKSHOP PROGRAM COMMITTEE MEMBER	ACL Student Research Workshop	2020
	Linking Models of Lexical, Sentential and Discourse-level Semantics (LSDSem)	2017
	Workshop on Evaluating Vector Space Representations for NLP (RepEval)	2016–2017
	NAACL-HLT Student Research Workshop	2016
	Joint Workshop on Social Dynamics and Personal Attributes in Social Media	2014

Teaching	Lecturer , Object Oriented Programming; Israeli Council of Higher Education Program for Online Digital Learning		2018–2020
	Primary instructor of one the core CS courses to be part of the Israeli online digital learning platform, designed to enhance and replace frontal lectures in all Israeli universities , as well as provide CS training to non-university students. Designing the course, building and recording online lectures.		
	Invited lecture , University of Washington School of Computer Science and Engineering master’s Natural Language Processing course (CSEP 517).		2017
	Lecturer , Object Oriented Programming on HUJI-Coursera		2014–2016
	Primary instructor of the first ever online course at the School of Computer Science and Engineering at the Hebrew University. Designing, building and recording online lectures for the main undergraduate programming course, given yearly to 300–500 undergraduate students.		
Professional Experience	Lecturer , Object Oriented Programming, Hebrew University		2009–2014
	Primary instructor. Designing and building the course, giving 2 weekly lectures to 300–500 students, and managing a staff of 15 teaching assistants.		
	Lecturer , Programming in the Perl Language, Hebrew University		2007–2008
	Initiator, designer, and primary instructor of a graduate programming course (30 students). Course designed and taught while still an undergraduate student.		
	Mentor, “MEET” (Middle East Education through Technology)		2008
Technical Skills	Software Engineer, Check Point Software Technologies LTD		2004–2005
	Course Guide, IDF “AHAM” Training Course		2003–2004
	Software Engineer, IDF Intelligence Corps		2001–2003
	Programming languages	Python, C/C++, Java, Matlab, Perl, JavaScript, tcsh/bash.	
	Deep learning frameworks	PyTorch, AllenNLP.	
Open Source			
SOFTWARE	The Right Tool for the Job https://github.com/allenai/sledgehammer		
	A Mixture of $h-1$ Heads is Better than h Heads https://github.com/Noahs-ARK/MaE		
	Show Your Work https://github.com/allenai/allentune		
	RNN Architecture Learning with Sparse Regularization https://github.com/dodgejesse/sparsifying_regularizers_for_RRNNs		
	PaLM: A Hybrid Parser and Language Model https://github.com/Noahs-ARK/PaLM		
	Inoculation by Fine-Tuning https://github.com/nelson-liu/inoculation-by-finetuning		
	Rational recurrent neural networks https://github.com/Noahs-ARK/rational-recurrences		
	SoPa: Soft patterns recurrent neural networks https://github.com/Noahs-ARK/soft_patterns		

Classifying documents according to their writing style
https://github.com/roys174/writing_style

DATASETS

SWAG: A large-scale adversarial dataset for grounded commonsense inference
<https://rowanzellers.com/swag/>

A hard subset of the Stanford natural language inference dataset
https://nlp.stanford.edu/projects/snli/snli_1.0_test_hard.jsonl

A hard subset of the multi-genre natural language inference dataset
<https://www.kaggle.com/c/multinli-matched-open-hard-evaluation/>

A dataset of peer reviews (PeerRead)
<https://github.com/allenai/PeerRead>

Educational Volunteer Work

Instructor, Israeli Ministry of Education 2013–2016
Instructor of math seminars to elementary school math teachers.

Volunteer, “Machshava Tova” NPO 2011–2013
“Machshava Tova” aims at narrowing social gaps through technology. The position included building an Android programming course for female orthodox high school students.

Mentor, “Halom” Youth Center 2006–2008
Promoting academic skills of high school students by one-on-one tutoring and mentoring.

Mentor and Teacher, Aldea Infantil Shelter, Puerto-Maldonado, Peru 2005
Volunteering in a shelter for children at risk. Mentoring the children and teaching English in a local high school.

Mentor, “Yachdav” Program 2001–2003
Development of mathematical and English skills of high school students by tutoring.

Languages

Hebrew	Native Language
English	Full Proficiency
Spanish	Advanced Level
Italian, Literary Arabic	Intermediate Level
Portuguese, Mandarin Chinese	Basic Level