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 Host: Prof. Noah A. Smith	2016–2020
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).

Short Papers

[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*.

[27] J. Acs, **R. Schwartz**, N. A. Smith, and A. Kornai, *How Well Does Multilingual BERT Know Morphology?*

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
Patterns 2020
PLOS Computational Biology 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.

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.

Professional Experience

Mentor, "MEET" (Middle East Education through Technology)	2008
Software Engineer, Check Point Software Technologies LTD	2004–2005
Course Guide, IDF "AHAM" Training Course	2003–2004
Software Engineer, IDF Intelligence Corps	2001–2003

Technical Skills

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