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Hamidreza Ghader

Research Interest

Natural Language Processing, Statistical Machine Translation (Neural and Phrase-based), Deep Neural Networks and Machine Learning.

Education

2014

Ph.D. Computer Science, *University of Amsterdam*, Amsterdam.

I am working on machine translation in the Information and Language Processing Systems (ILPS) group. My current focus is on neural machine translation and studying what is captured internally by neural machine translation systems. I have also worked on phrase-based machine translation with a focus on reordering models.

Supervisors: Christof Monz and Maarten de Rijke

2009
2012

M.Sc. Artificial Intelligence, *Iran University of Science and Technologies*, Tehran.

Thesis: A Bayesian Model of Cognition for Grammar Induction from Natural Language Corpora

Supervisors: Morteza Analoui and Heshaam Faili

2003
2008

B.Sc. Software Engineering, *University of Tehran*, Tehran.

Technical Experience

2019

Lead NLP and Machine Learning Engineer, *Development Team*, Contexta360, Amsterdam.

I am responsible for research and development and productionization of machine learning models that do NLP analysis (Topic Detection, Text Classification, Sentiment Analysis, Information Extraction, etc.) on the output text of an in-house speech-to-text engine which converts phone conversations to text. I also work closely with the lead speech scientist to further improve the quality of the speech-to-text engine on multiple languages.

2018

Research Intern, *AIP*, RIKEN (National Research Institute of Japan), Tokyo.

I worked on Wikipedia classification and creating knowledge graphs on low resource languages.

2016
2018

Co-developer of a Phrase-based Machine Translation System, *ILPS Group*, University of Amsterdam, Amsterdam.

This is part of REMEDI (Robust and Efficient Machine Translation in a Distributed Infrastructure) project. [Github Page for the Decoder] [Github Page for Model Building Tools]

2014

Research Assistant, *ILPS Group*, University of Amsterdam.

Involved in development of multiple in-house machine translation systems including phrase-based and neural systems. Conducting code development, data preprocessing, experiments and documenting the systems.



Selected Publications

- Hamidreza Ghader and Christof Monz, 2019. "Judging by the Neighbors: An Intrinsic Evaluation of Neural Machine Translation Architectures", *In Proceedings of 17th Machine Translation Summit (MTSummit XVII)*, Dublin, Ireland.
- Hamidreza Ghader and Christof Monz, 2017. "What does Attention in Neural Machine Translation Pay Attention to?", *In Proceedings of the 8th International Joint Conference on Natural Language Processing (IJCNLP2017)*, Taipei, Taiwan.
- Hamidreza Ghader and Christof Monz, 2016. "Which Words Matter in Defining Phrase Reorderings in Statistical Machine Translation?", *In Proceedings of the 12th Conference of the Association for Machine Translation in the Americas (AMTA2016)*, Austin, US.
- Marzieh Fadaee, Hamidreza Ghader, Hesham Feili, Azadeh Shakery, 2013. "Automatic WordNet Construction Using Markov Chain Monte Carlo", *In Proceedings of the 14th International Conference on Intelligent Text Processing and Computational Linguistics (CICLING)*, Samos, Greece.

Skills

Machine Learning

Models Deep Neural Networks, Bayesian Models, Classification and Clustering Algorithms
Frameworks Tensorflow, Keras, Torch, PyTorch

Development

Design	Object-oriented design, analysis and implementation Algorithm design and analysis
Languages	Professionally experienced in Python, C/C++, C# and Java Experienced in Perl, MATLAB Competent in Lua, Bash, SQL
NLP Tools	BERT, Word2Vec, NLTK, OpenNMT, Moses, SRiLM, KenLM, Stanford CoreNLP
Cloud Services	Amazon AWS
Typesetting	L ^A T _E X, Microsoft Office
Markup Languages	XML, HTML, CSS

Social Skills and Competences

Team-work, adaptability and flexibility which I have developed by participating in group projects during my research and work experiences in various companies.

Community Service

Organizational	Organizer of Public Cultural Events (including film screening and story telling gatherings) for the Community of Iranians of Amsterdam, 2018, 2019, 2020 Organizer and Chair of Weekly Seminars of ILPS Group, 2017
Reviewing	COLING2018, WMT2017, CSICC2016, CSICC2015
Campaigns	Team member and Co-developer of Machine Translation Systems of the Team of University of Amsterdam for NIST Open MT Evaluation, 2015
Summer Schools	Machine Translation Marathon, 2014, Trento, Italy

Teaching

2015 2018	Teaching Assistant, University of Amsterdam. Deep Learning for Natural Language Technology, Masters Course for Artificial Intelligence, 2018 Machine Learning Course, Bachelor Course for Artificial Intelligence, 2017 Machine Learning Course, Bachelor Course for Artificial Intelligence, 2016 Machine Learning Course, Bachelor Course for Artificial Intelligence, 2015
2010 2011	Teaching Assistant, Iran University of Science and Technology. Statistical Pattern Recognition Course, M.Sc. Course for Artificial Intelligence, 2011 Statistical Pattern Recognition Course, M.Sc. Course for Artificial Intelligence, 2010
2011	Teaching Assistant, University of Tehran. Natural Language Processing Course, M.Sc. Course for Artificial Intelligence, 2011
2006	Teaching Assistant, University of Tehran. Database Laboratory Course, Bachelor Course for Software Engineering, 2006

Languages

Persian	Native
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English Fluent

Dutch A2

Achievements

- Ranked 312th among more than 500,000 participants in Iran National Universities Entrance Exam, 2003.
- Two times championship in futsal with the team of faculty of engineering in sport tournaments of University of Tehran, 2006 and 2007.
- Two times championship in futsal at level 6 and 5 of the largest futsal competitions in the Netherlands (USC League), 2017.