Hamidreza Ghader

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Research Interest

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

Education

2014 – 2020

Ph.D. Computer Science, *University of Amsterdam*, Amsterdam.
Thesis: An Empirical Analysis of Phrase-based and Neural Machine Translation

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, Summarization, etc.) on the output text of an in-house speach-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.

2013
2014

Senior Software Developer, *Nomatec Co.*, Tehran, Iran.

During my work in this company, I improved their internal search engine which provides search possibilities over Persian legal text and unified judicial precedents. I added spell checking and correction and improved the engine to capture variation of spelling of terms. The engine also provides search possibility for finding similar brands to be used in brand registration process. I also improved this part of the engine to capture the similarities more efficiently and rank the brands based on their similarity to the query term as well as increasing its coverage of the similar terms.

2011
2013

Research Assistant and Member of Machine Translator Development Team, *Natural Language Processing Lab*, University of Tehran, Iran.

This project has resulted in the production of an English to Persian machine translator, which is now evolved to be Faraazin. The project has been funded by Iran Research Institute for ICT.

2008
2011

Software Developer, *Douran Software Technologies*, Tehran, Iran.

Development of a machine translator system.

2007
2008

Software Developer, *Farineh Fanavar Co.*, Tehran, Iran.

Development of a Control Engineering Workstation System; In a relatively large software development team, my colleagues and I were developing the IDE of a larger workstation system. The IDE was helping control engineers to develop their control procedures in block diagrams and ladder logic and compile them to C++ codes or executable codes on embedded devices.

2006

Software Developer, *Ashna Secure Co.*, Tehran, Iran.

Iran's National Fuel Smart Card Project.

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, Heshaam Feili, Azadeh Shakery, 2013. "Automatic WordNet Construction Using Markov Chain Monte Carlo", *In Proceedings of the14th International Conference on Intelligent Text Processing and Computational Linguistic (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	LaTeX, 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

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.