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Hamidreza Ghader

Research Interest

Natural Language Processing, Statistical Machine Translation (Neural and Phrasebased), Machine Learning.

Education

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

I am working on statistical 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

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

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

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

2016 Co-developer of a Phrase-based Machine Translation System, ILPS Group, University of 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

Research Assistant, ILPS Group, University of Amsterdam.

Involved in development of multiple in-house machine translation systems including phrasebased 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 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 English to Persian machine translator. The project has been funded by Iran Research Institute for ICT. 2007 **Software Developer**, Farineh Fanavar Co., Tehran, Iran. Development of a Control Engineering Workstation System. 2006 Software Developer, Ashna Secure Co., Tehran, Iran. Iran Fuel Smart Card Project. publication 2017 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. 2016 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. 2013 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. 2012 Heshaam Faili, Hamidreza Ghader and Morteza Analoui, 2013. "A Bayesian Model for Supervised Grammar Induction", in Signal and Data Processing. 2008-3262. Skills Machine Learning Models Neural Networks, Bayesian Models, Classification and Clustering Algorithms

Frameworks Torch, PyTorch, Tensorflow

Development

Design Object-oriented design, analysis and implementation

Algorithm design and analysis

Languages Professionally experienced in C/C++, C# and Java

Experienced in Perl, MATLAB

Competent in Python, Lua, Bash, SQL

NLP Tools OpenNMT, Moses, SRiLM, KenLM, Stanford CoreNLP

Typesetting LATEX, Microsoft Office

Markup XML, HTML, CSS Languages

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 and Chair of Weekly Seminars of ILPS Group, 2017

Reviewing 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

Machine Translation Marathon, 2014, Trento, Italy Schools

Teaching

2010

2011

2006

Teaching Assistant, University of Amsterdam.

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

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

Teaching Assistant, *University of Tehran*.

Natural Language Processing Course, M.Sc. Course for Artificial Intelligence, 2011

Teaching Assistant, *University of Tehran*.

Database Laboratory Course, Bachelor Course for Software Engineering, 2006

Languages

Persian Native

English Fluent

Dutch A2

Achievements

- o 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).