Igor Shalyminov

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United Kingdom

About me

I'm a PhD student at the Heriot-Watt University under the supervision of Prof. Oliver Lemon and Dr. Arash Eshghi.
My research interests are in the areas of Natural Language Processing and Machine Learning. My research is focused on spoken dialogue systems, and its main goal is bringing the level of domain-restrictedness of such systems as well as the amount human supervision required to the minimum.

Education

PhD, Computer Science — October 2016 — Present

Heriot-Watt University

Research area: Deep learning methods for spoken dialogue systems
Supervisors: Prof. Oliver Lemon, Dr. Arash Eshghi

Professional Retraining in Data Analysis (MSc equiv.) — September 2010 — June 2012

Yandex School of Data Analysis (Moscow Institute of Physics and Technology)

Computer Science Department

GPA: 4,66

Specialist (MSc equiv.) — September 2005 — June 2010

Moscow State University of Instrument Engineering and Computer Science

Information Technologies Department

Major: Computing machines, systems, and networks

GPA: 5,0

Defended thesis “A module for generating data for equipment reliability estimation in the 'Prognosis' software suite”

Supervisor: Prof. Aleksandr Aleksandrov

Awards

Dialogue System Technology Challenge (DSTC) 8, Fast Domain Adaptation - 1st place, 2019
EMNLP 2019 - Student Travel Scholarship, 2019
SCAI workshop@EMNLP 2018 - travel grant from sponsors (Microsoft, Facebook, Google, and TextKernel), 2018
Amazon Alexa Prize 2018 (part of team Alana) - 3rd place prize + research grant, 2018

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James Watt Scholarship from Heriot-Watt University, 2016

Work experience

Microsoft Research Montréal — May 2019 — August 2019

Research Intern

Mentor: Dr. Hannes Schulz
Project: Dialogue State Tracking Challenge (DSTC) 8 - Fast Domain Adaptation

Microsoft AI and Research — Jun 2018 — Sep 2018

Research Intern

Mentor: Dr. Sungjin Lee

Project title: "Improving robustness of goal-oriented dialog systems in an unsupervised way".

Yandex LLC, Moscow — August 2013 — September 2016

Software Engineer

Projects I participated in:

- Voice interfaces for applications - dialogue management module
- Voice analytics for callcenters - search engine for voice data
- Russian National Corpus - search engine for linguistic research

Yandex School of Data Analysis (Yandex LLC / Moscow Institute of Physics and Technology), Moscow — September 2013 — June 2015

Teaching Assistant

Natural Language Processing course taught by Dr. Alexey Zobnin (Computer Science department, final year course).

My resposibilities for the course were:

- designing problems for the seminar classes;
- conducting the classes;
- helping the professor with designing home assignments and reviewing students' submissions.

Microsoft Corporation, Redmond — May 2014 — August 2014

Research Intern

Mentors: Dr. Yuxiong He, Dr. Sameh Elnikety

I worked on a query optimizer for a term distributed search engine. During my internship, I completed the following tasks:

- built combined analytical and statistical models of a search query for estimating its latency and amount of data for network communication;
- designed and implemented algorithms for producing optimal query plans in terms of minimizing either of the two objectives: latency or network communication.

The prototype of the query optimizer and distributed experimental platform was implemented in Java and Python.

Yandex LLC, Moscow — May 2012 — August 2013

Junior Software Engineer

Participated in development of Russian National Corpus . I maintained the search engine at its existing architecture and explored the possibilities of improving it for better performance and reliability.

Yandex LLC, Moscow — June 2011 — December 2011

Software Engineer Intern

Mentor: Dr. Alexey Zobnin

Built a prototype of an N-gram search service for Russian National Corpus. The service consisted of two components:

- N-grams storage - a compressed delta-encoded word trie written in C++;
- Search client - an http server in Python receiving user requests and fetching the results from the N-gram storage.

Intel Corporation — June 2010 — August 2010

Software Engineer Intern

Mentor: Dr. Denis Makoshenko

As a part of Intel Summer School 2010, I participated in Intel C/C++ Compiler development with a research project “Enhancing the methodology to access the bottom boundary of software pipelined cycle execution time as the application of an algorithm for finding a maximum cycle in a directed graph”.

Moscow State University of Instrument Engineering and Computer Science — 2006 — 2012

Software Engineer

Participated in the development of “Prognosis” - a software suite for reliability calculation of the equipment used in nuclear energetics.

Additional Education

Summer Schools attended:

- 2013 - Microsoft School on Algorithms for Massive Data (ALMADA). Attended lectures on the effective algorithms for External Memory computational model, algorithms and techniques for large-scale graph problems. Did theoretical assignments on graph algorithms and a Linq programming assignment in Linq.
- 2011 - Yandex Summer School On Distributed Computing. Attended lectures on Information Retrieval and MapReduce computing model. Did a practice assignment in Hadoop.
- 2010 - Intel Summer School. Attended lectures and webinars on parallel computing and processor architectures. Learned Intel IA64 architecture (Itanium I and II), participated in Intel C++ Compiler development.

University Courses Taken:

- 2014 - Formal Semantics and Typology of Anaphora taught by Barbara H Partee. National Research University Higher School Of Economics

MOOCs Taken:

- Bayesian Statistics: Techniques and Models - Coursera (2019)
- Bayesian Statistics: From Concept to Data Analysis - Coursera (2019)
- Bayesian Methods for Machine Learning - Coursera (2018)
- Deep Learning Specialization - Coursera (2018)
- Neural Networks For Machine Learning - Coursera (2017)
- Artificial Intelligence for Robotics - Udacity (2016)
- Deep Learning - Udacity (2016)
- Machine Learning: Reinforcement Learning - Udacity (2015)
- Intro to Artificial Intelligence - Udacity (2013)
- Intro To Statistics - Udacity (2012)

Certifications:

- Microsoft Certified Professional - 70-536 Microsoft .NET Application Development Foundation
- Electronic office programmer - C++ and Pascal programming (Specialist Training Centre)

Tests Taken

- TOEFL iBT: 99 (Reading - 26, Listening - 24, Speaking - 24, Writing - 25)
- GRE: Verbal Reasoning - 152, Quantitative Reasoning - 161, Analytical Writing - 4.0
- IELTS Academic UKVI: 8.0 (Listening - 8.5, Reading - 8.5, Writing - 7.5, Speaking - 7.0)

Language Ability

- Russian - native;
- English - upper-intermediate;
- Spanish - beginner

Relevant Skills

Programming Languages

Python, C++, Java, Perl

Frameworks

Tensorflow, scikit-learn, Keras, Lucene

Databases

mongodb, MySQL

Data analysis tools
Jupyter notebook, matplotlib, pandas

Core Technical Skills

Strong knowledge of classic algorithms and data structures; strong mathematical foundation; knowledge of machine learning algorithms; backgound in Natural Language Processing

Interests

Foreign languages, healthy lifestyle, photography, electronic music production.

References

Prof. Oliver Lemon
Professor, School of Mathematical & Computer Sciences, Heriot-Watt University
Email: o.lemon@hw.ac.uk

Arash Eshghi, PhD
Assistant Professor, School of Mathematical & Computer Sciences, Heriot-Watt University
Email: a.eshghi@hw.ac.uk

Sungjin Lee, PhD

Senior Researcher, Microsoft Research
Email: sule@microsoft.com

Yuxiong He, PhD
Researcher, Microsoft Research
Email: yuxhe@microsoft.com

Publications

2019

- Igor Shalyminov, Sungjin Lee, Arash Eshghi, Oliver Lemon. Data-Efficient Goal-Oriented Conversation with Dialogue Knowledge Transfer Networks. EMNLP 2019
- Igor Shalyminov, Sungjin Lee, Arash Eshghi, Oliver Lemon. Few-Shot Dialogue Generation Without Annotated Data: A Transfer Learning Approach. SigDial 2019
- Sungjin Lee and Igor Shalyminov. Contextual Out of domain Utterance Handling with Counterfeit Data Augmentation. ICASSP 2019

2018

- Igor Shalyminov and Sungjin Lee. Improving Robustness of Neural Dialog Systems in a Data-Efficient Way with Turn Dropout. NeurIPS 2018 workshop on Conversational AI
- Igor Shalyminov, Arash Eshghi, and Oliver Lemon. Multi-Task Learning for Domain-General Spoken Disfluency Detection in Dialogue Systems. SemDial 2018
- Igor Shalyminov, Ondrej Dusek, and Oliver Lemon. Neural Response Ranking for Social Conversation: A Data-Efficient Approach. Search-Oriented Conversational AI, an EMNLP 2018 Workshop
- Amanda Cercas Curry, Ioannis Papaioannou, Alessandro Suglia, Shubham Agarwal, Igor Shalyminov, Xinnuo Xu, Ondřej Dušek, Arash Eshghi, Ioannis Konstas, Verena Rieser and Oliver Lemon. Alana v2: Entertaining and Informative Open-domain Social Dialogue using Ontologies and Entity Linking. Alexa Prize proceedings, 2018

2017

- Igor Shalyminov, Arash Eshghi, and Oliver Lemon. Challenging Neural Dialogue Models with Natural Data: Memory Networks Fail on Incremental Phenomena. SemDial 2017
- Arash Eshghi, Igor Shalyminov, and Oliver Lemon. Bootstrapping incremental dialogue systems from minimal data: the generalisation power of semantic grammars. EMNLP 2017
- Arash Eshghi, Igor Shalyminov, and Oliver Lemon. Bootstrapping Dialogue Systems: Using a Semantic Model of Dialogue to Generalise from Minimal Data. LaML 2017
- Arash Eshghi, Igor Shalyminov, and Oliver Lemon. Interactional Dynamics and the Emergence of Language Games. FADLI 2017
- Ioannis Papaioannou, Amanda Cercas Curry, Jose L. Part, Igor Shalyminov, Xinnuo Xu, Yanchao Yu, Ondrej Dušek, Verena Rieser, Oliver Lemon. Alana: Social Dialogue using an Ensemble Model and a Ranker trained on User Feedback. 2017 Alexa Prize Proceedings
- Ioannis Papaioannou, Amanda Cercas Curry, Jose L. Part, Igor Shalyminov, Xinnuo Xu, Yanchao Yu, Ondrej Dušek, Verena Rieser, Oliver Lemon. An Ensemble Model with Ranking for Social Dialogue. NIPS Workshop on Conversational AI 2017

2010

- Igor Shalyminov. Using Policies in Designing of a Library for Cell Operations in ‘Prognoz’ Software Package. Software for PC-based systems for various purposes #13, pp. 101–107. ISBN 978-5-8068-0462-5

2009

- Igor Shalyminov. Algorithms for calculation of constructions fault probability in ‘Prognoz’ software package. Applied Mathematics and Mathematical Modelling, pp. 70–77. ISBN 978-5-8122-1023-6

2008

- Aleksandr Aleksandrov, Alexey Vostrikov, and Igor Shalyminov. An algorithm for generation geometric objects for crack formation analysis. Software for PC-based systems for various purposes #11, pp. 145–148. ISBN 978-5-8068-0418-2

2007

- Aleksandr Aleksandrov and Igor Shalyminov. An algorithm for definition of crack formation probability in statistical modeling. Software for PC-based systems for various purposes #10, pp. 11–15. ISBN 978-5-8068-0393-2

Professional Service

Program committee: AAAI 2020, SCAI@IJCAI 2019, ACL 2019, ACL 2018 (last-minute reviewer), COLING 2018, EMNLP 2018 (secondary reviewer), SCAI@EMNLP 2018