Tetiana Parshakova

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OBJECTIVE

To develop and analyze new learning algorithms using techniques from optimization and statistics, as well as obtaining the control models in the approximate dynamical system environments

EDUCATION

Master of Science, Electrical Engineering
Korea Advanced Institute of Science and Technology, March 2017 - February 2019
Concentration: Machine Learning, GPA: 4.07/4.3 (97.44%)
Laboratory: Brain Reverse Engineering and Imaging Lab, supervised by Dae-Shik Kim

Bachelor of Science, Industrial Design (College of Information Science and Technology)
Korea Advanced Institute of Science and Technology, March 2012 - February 2017
Concentration: Computer Human Interaction, *Magna Cum Laude*, GPA: 3.85/4.3 (95%)
Laboratory: My Design Lab, supervised by Daniel Saakes

High School, Mathematics
Ukrainian Lyceum of Physics and Mathematics of Taras Shevchenko National University of Kyiv, September 2009 - May 2012
Concentration: Mathematics, Computer Science, *Gold Medal*

PUBLISHED WORK

Latent Question Interpretation Through Parameter Adaptation, Tetiana Parshakova, Francois Rameau, Andriy Serdega, In So Kweon and Dae-Shik Kim. **Submitted** to IEEE/ACM Transactions on Audio, Speech, and Language Processing. 2018

Latent Question Interpretation Through Parameter Adaptation Using Stochastic Neuron, Tetiana Parshakova and Dae-Shik Kim. In Proceedings of ICML Workshop, MRC-2018, http://ceur-ws.org/Vol-2134/#paper07. 2018

UMorph: Self-Change Tracker to Reflect Yourself to the Future and Past, Tetiana Parshakova and Daniel Saakes. In Proceedings of the 2018 ACM Conference Companion Publication on Designing Interactive Systems, ACM. 2018

Furniture that Learns to Move Itself, Tetiana Parshakova, Minjoo Cho, Alvaro Cassinelli, and Daniel Saakes. In Proceedings of the 2017 CHI Conference Extended Abstracts on Human Factors in Computing Systems, ACM. 2017

Ratchair: Furniture learns to move itself with vibration, Tetiana Parshakova, Minjoo Cho, Alvaro Cassinelli, and Daniel Saakes. In ACM SIGGRAPH 2016 Emerging Technologies, ACM. 2016

RESEARCH EXPERIENCE

Graduate Researcher 2017-2018
Brain Reverse Engineering and Imaging Lab, KAIST

- "Latent Question Interpretation Through Parameter Adaptation Using Stochastic Neuron". Implemented in PyTorch.
- In "Visual Question Answering" project, worked with bottom-up and top-down attention model. Explored the influence of policy gradient, various word embeddings and new attention on the output layer. Implemented in PyTorch.
- "Abstractive Text Summarizer" is a model, which combines Pointer generator networks with Seq2seq attention model, by constructing a hybrid distribution over the vocabulary from which it eventually generates the summary. Explored the effectiveness of CNN attention, diversity loss and data augmentation (using English dictionary). Implemented in Tensorflow.
- "DDPG with Attention-based LSTM State Encoder" is a sequential decision making agent for solving 'Angry Birds' using Deep Deterministic Policy Gradient (DDPG) with Attention-based LSTM for state encoding. In order to explore with a deterministic policy we use actor critic algorithm for learning off policy with a stochastic behavior policy. Implemented in Tensorflow.
- "Opinion Generator" is a model, which aims to capture a global 'pathway' of an opinion as a response to other statement. It consists of CNN encoders, that operate on character level, and whose outputs are given to recurrent block to combine sentences over time, so that the produced context representations are used to condition the CNN decoder. Implemented in Tensorflow.

Undergraduate Researcher 2016
Brain Reverse Engineering and Imaging Lab, KAIST

- Machine Learning and Reinforcement Learning basics
- Worked on "Comic style generation using neural networks" using Lua and Torch

Undergraduate Researcher 2015-2016
My Design Lab, KAIST

- "Ratchair" is a strategy for displacing objects utilizing vibrations, `http://mid.kaist.ac.kr/projects/ratchair/`. Used: Python, Java, Android, OpenCV, Arduino, Inventor, Processing-Android, Myo Armband, hardware
- "UMorph" is an unobtrusive self-image capturing system for tracking self changes over time. Used: PyQt, Dragon Board 410c, OpenCV, Dlib, hardware

HONORS & AWARDS

Qualcomm-KAIST Innovation Awards 2018 (Paper Competition Awards for Graduate Students) for "Latent Question Interpretation Through Parameter Adaptation Using Stochastic Neuron"	2018
"Ratchair: Furniture That Learns to Move Itself" demonstration for Discovery Daily Planet Canada show	2017
"Furniture That Learns to Move Itself" featured in KAIST Breakthroughs Newsletter	2017
Excellence Award for Bachelor's thesis "UMorph: Self-Change Tracker to Reflect Yourself to the Past and to the Future"	2017
First prize in Qualcomm-KAIST Innovation Awards 2016 (Embedded Systems Awards) for "My Life Journey (Unobtrusive Self-Image Capturing System for Tracking Self Changes over Time)"	2016
SIGGRAPH 2016 Emerging Technologies DC EXPO Special Prize for "Ratchair: Furniture That Learns to Move Itself With Vibration"	2016
Undergraduate Research Program Excellence Award for Extraordinary Efforts and Research Outcomes	2016
Undergraduate scholarship at KAIST	2012-2016
Bronze medals at Kyiv Capital Olympiads in Mathematics, Ukraine	2009, 2012
Silver medal at Regional Mathematics Olympiad	2009
Participant of Ukrainian Olympiad in Mathematics	2008
Gold medal at Volyn Regional Mathematics Olympiad	2008

COMPUTER SKILLS

Languages & Software: Python, Java, Torch, Tensorflow, PyTorch, Git, LaTeX, OpenCV.
Prototyping: Raspberry Pi, Arduino, Processing-Android, Inventor.
Operating Systems: Unix.

EXTRA-CURRICULAR

Tutor at EE Co-op program. Prepared undergraduate students for internship at Kakao in Natural Language Processing using Deep learning. Taught basic Machine Learning, Tensorflow and research papers related to Neural Machine Translation.	2018
Tutor in science camp for high school students. Helped to prepare for a science competition.	2017, 2018
Participated in student liaison for KAIST EE promotion in Ukraine. Recruited students in Ukraine and helped organize EE Visit Camp.	2017
Tutor in English Camp for elementary and middle school children in Yeonggwang.	2017, 2018
Teaching Assistant at KAIST: Introduction to Philosophy, English Short Stories, Philosophy of Mathematics, Logic and Artificial Intelligence	2015, 2016
Volunteer at UEFA Euro 2012. Participated in closing ceremony dance performance in Kyiv.	2012