TOMASZ KORBAK

Department of Informatics, University of Sussex, UK

tomekkorbak.com ⬦ t.korbak@sussex.ac.uk

INTERESTS

Machine learning: reinforcement learning, deep representation learning, natural language processing, Bayesian inference

Cognitive science: probabilistic models of cognition, compositionality, emergent communication, predictive coding

FEATURED WORK

1. Korbak, T., Zubek, J., Kuciński, Ł., Miłoś, P. & Rączaszek-Leonardi, J. (2019). Developmentally motivated emergence of compositional communication via template transfer. NeurIPS 2019 workshop "Emergent Communication: Towards Natural Language".

2. Główka, K., Niklewski, M., Korbak, T., Zubek, J., Rączaszek-Leonardi, J. (2020). Emergence of Action-grounded Compositional Communication. 42nd Annual Virtual Meeting of the Cognitive Science Society.

3. Korbak, T., Zubek, J., Rączaszek-Leonardi, J. (2020). Measuring non-trivial compositionality in emergent communication. NeurIPS 2020 workshop "Talking to Strangers: Zero-Shot Emergent Communication".

4. Kuciński, Ł., Miłoś, P., Korbak, T., Kołodziej, P. (2020). Emergence of compositionality in communication over a noisy channel. In review.

RESEARCH EXPERIENCE

Department of Informatics,   **PhD researcher**
University of Sussex   *September 2020 – September 2023*

Working on biologically-inspired learning schemes for deep neural networks and probabilistic approaches to control with Dr. Chrisopher Buckley and Prof. Anil Seth.

Human Interactivity and Language Lab,   **Research assistant**
Faculty of Psychology, University of Warsaw   *February 2019 – October 2020*

Investigating compositional generalisation in neural networks models with Prof. Joanna Rączaszek-Leonardi.

Institute of Philosophy and Sociology,   **Principal investigator**
Polish Academy of Sciences   *November 2016 – November 2020*

Theoretical work on Bayesian approaches in computational neuroscience, representational learning in deep neural networks and enactive cognitive science under with Prof. Marcin Miłkowski.

Institute of Computer Science,   **Research intern**
Polish Academy of Sciences   *April 2017 — November 2017*

Working on neural network-based tools for processing of Polish as part of Clarin-PL project, funded by the European Commission.

INDUSTRIAL EXPERIENCE

Daftmobile, Senior Machine Learning Engineer	*August 2020 — November 2020*
Sigmoidal, Machine Learning Engineer	*June 2018 — August 2020*
Samsung R&D, Junior NLP Engineer	*April 2017 — December 2017*
Inteliclinic, Python Developer	*December 2015 — March 2017*
Webinterpret, Junior Python Developer Intern	*July 2015 — September 2015*

EDUCATION

PhD in Informatics, University of Sussex, UK	*2020 – 2023*
MSc in Cognitive Science, University of Warsaw, Poland	*2016 – 2019*
BSc in Cognitive Science, University of Warsaw, Poland	*2013 – 2016*
BAs in Philosophy, University of Warsaw, Poland	*2012 – 2015*

ADDITIONAL TRAINING

Diverse Intelligences Summer Institute, University of California, Los Angeles	*2020*
Bayesian Methods in Deep Learning, National Research University (Moscow)	*2018*
School of Pioneers (tech entrepreneurship workshops), University of Cambridge	*2018*
Computational Psychiatry Course, ETH (Zurich)	*2017*

JOURNAL PAPERS

1. Korbak, T. (2019). Computational enactivism under the free energy principle. *Synthese.*

2. Korbak, T. (2019). Unsupervised learning and the natural origins of content. *Avant.*

3. Korzeniowski, R., Rolczyński, R., Sadownik, P., Korbak, T. & Możejko, M. (2019). Exploiting Unsupervised Pre-training and Automated Feature Engineering for Low-resource Hate Speech Detection in Polish. *Proceedings of the PolEval 2019 Workshop.*

4. Korbak, T. & Żak, P. (2017). Fine-tuning Tree-LSTM for phrase-level sentiment classification on a Polish dependency treebank. *Proceedings of the 8th Language & Technology Conference (LTC 2017).*

5. Korbak, T. (2015). Scaffolded Minds and the Evolution of Content in Signaling Pathways. *Studies in Logic, Grammar and Rhetoric*, 41 (54).

SKILLS

Python (web frameworks and data science ecosystem), C++, PyTorch, tensorflow, git, Docker, Kubernetes, slurm, cloud computing, GNU/Linux, LaTeX

AWARDS AND FELLOWSHIPS

Leverhulme Doctoral Scholarship (Leverhulme Trust)	*2020-2023*
Diverse Intelligences Summer Institute Fellowship (Templeton Foundation)	*2020*
Collegium Invisibile Fellowship	*2017 – present*
Minister of Science and Higher Education (Poland) scholarship for exceptional students	*2016*
Diamond grant award (Ministry of Science and Higher Education, Poland) (168 000 PLN)	*2016 – 2020*

ACADEMIC SERVICE

Member of the organizing committee of International Association for Computing and Philosophy conference, Warsaw, 21–23 June 2018.

REFERENCES

Prof. Anil Seth
Sackler Centre for Consciousness Science, University of Sussex
a.k.seth@sussex.ac.uk
Role: PhD advisor

Prof. Joanna Rączaszek-Leonardi
Faculty of Psychology, University of Warsaw
raczasze@psych.uw.edu.pl
Role: MSc advisor

Last updated on December 4, 2020.