

Piotr Nawrot

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EDUCATION

UNIVERSITY OF WARSAW

MASTER'S IN COMPUTER SCIENCE
2021 - 2023 | Focused on ML

UNIVERSITY OF WARSAW

BS IN COMPUTER SCIENCE
2018 - 2021 | Final grade 4.5/5

- Bachelor's Thesis - **Transformers for classification and image generation**
- **Dean's List** for 2 semesters
- Top grades in Deep Learning, Machine Learning and Visual Recognition

EXTRACURRICULAR

- **ML in PL Conference 2021**
Panel discussion coordinator, co-organised an English discussion: Sins and marvels of AI research
- **Machine Learning Society**
Board member, organised bi-weekly seminars to discuss recent advances in the AI&ML field
- **Meet IT**
Volunteer tutor, mentored two high-school students to become laureates in the Olympiad in Informatics (Top 10% nationally)
- **Programming competition author**
Prepared 8 algorithmic tasks with tests, wrote model solutions in C++, and organised a lecture afterwards

INTERESTS

- For three years I have been doing a lot of short term investments in fashion, mainly designer sneakers. During that period I completed over 1000 transactions
- I love pushing my physical boundaries and experiencing the adrenaline rush caused by high speed or the feeling of flying. Therefore my favourite sport is kitesurfing and this summer I managed to do 12 feet kite jump.

EXPERIENCE

NVIDIA | DEEP LEARNING AND ALGORITHMS INTERN

Jul 2021 - Present | Warsaw, Poland

Link: github.com/NVIDIA/DeepLearningExamples

- Implemented multi-node wav2vec 2.0 inference with two external LMs. **Observed 5% relative Word Error Rate (WER) improvement over beam decoding with n-gram while being nearly as fast as wav2vec 2.0 supervised training**
- Proposed and implemented modifications of wav2vec 2.0 Transformer that **improved valid WER from 3.26% to 2.98%**
- Implemented a Python interface for streaming ASR models. Conducted field of view comparison of different ASR models based on WER changes w.r.t. available buffer

GOOGLE BRAIN | RESEARCH SIDE PROJECT

Oct 2020 - Oct 2021 | Warsaw, Poland

Link: github.com/google/trax

- **Pursued research which resulted in submission to ACL:**
Nawrot, P., Tworkowski, S., Tyrolski, M., Kaiser, L., Wu, Y., Szegedy, C., & Michalewski, H. (2021). Hierarchical transformers are more efficient language models. *Under review for ACL 2022.*
- **Contributed to Trax library: Hourglass model, Transformer-XL relative attention, Rotary positional embeddings**
- Gave a talk at ML in PL Conference 2021, at DeepMind hosted by Wojciech Stokowiec, Harvard hosted by Michael Douglas [LINK]

NVIDIA | DEEP LEARNING AND ALGORITHMS INTERN

Jun 2020 - Nov 2020 | Warsaw, Poland

Link: github.com/NVIDIA/DeepLearningExamples

- Refactored research code with **multi-speaker functionality of TTS model** and contributed to open-source repository
- Introduced new rules to the main **text data preprocessing** module which is used and shared across Nvidia's speech teams
- Researched **extracting grapheme boundaries** using outputs of ASR models
- Learned to use compute clusters and organise experimental results

ACHIEVEMENTS

COMPETITIVE PROGRAMMING

2015 - 2019

Participated in both individual and team ICPC-style competitions and was the main coder in my team, responsible for strategy and decision making during the competition. Prepared more than 30 C++ implementations of data structures and algorithms that we used while solving the problems.

Awards:

- **Bronze medal in the 2019 ACM ICPC Central European Regional Contest**
- 5th place in the 2019 Polish Collegiate Programming Contest
- Top 1% in Google Code Jam 2017
- Silver and Bronze Medal in 2018 and 2017 Polish Olympiad in Informatics