Toni Kukurin

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Education

2017–2020 **MSc in Computer Science**, FER Zagreb.
Structured Deep Learning With Graph Neural Networks. Machine Learning, Deep Learning, Distributed Systems, Heuristic Optimization, Advanced Algorithms, Text Analysis and Retrieval.

2014–2017 **BSc in Computer Science**, FER Zagreb.
Claim and Stance Classification in Online Discussions Using Machine Learning. Artificial Intelligence, Database Systems, Discrete Math, Statistical Data Analysis, Advanced Linux, Software Design. TA: *Digital Logic Experiments, Intro to Java, Interactive Computer Graphics.*

Recent Experience

current **Bloomberg AI**, *Natural Language*, Senior Research Engineer, Remote/London.
- NLP at Bloomberg's AI group.

from 07/2019 **Google**, *Lens*, Software Engineering Intern, Zürich.
to 10/2019
- Implemented a user-friendly image labeling front-end (*JavaScript*)
- Researched and implemented a font style detection **autoencoder ML model** (*TensorFlow*)
- Implemented an accessibility contrast adjustment algorithm (*C++*)
- Enhanced a **synthetic data generation** tool in cross-team collaboration (*C++*)

from 04/2019 **Microsoft**, *Natural Language Understanding*, Applied Science Intern, Redmond.
to 07/2019
- Adapted BERT for **joint intent classification and slot filling** in conversational NLU (*PyTorch*)
- Collected, analyzed, and cleaned a large conversational multi-turn dataset (*SpaCy, NLTK*)
- Devised and implemented **weakly supervised transfer learning** experiments in Snorkel (*Python*)

from 10/2018 **TakeLab**, Research Intern, Zagreb.
to 04/2019
- Implemented ML **domain adaptation** methods focused on **active learning** (*SKLearn*)
- Analyzed & vastly improved the quality and performance of a large legacy codebase (*Python*)
- Maintained a production-grade ML model: **serving, collection & storage** (*SQL, Django, React*)

from 07/2018 **Microsoft**, *Office 365*, Software Engineering Intern, Redmond.
to 10/2018
- Architected & implemented back-end logic for a network topology builder service (*C#, Azure*)
- Implemented bugfixes for an internal microservice framework (*C#*)

from 02/2018 **Freelance**, Software Engineer, Remote.
to 07/2018
Devised software solutions for a broad clientele in parallel with my university work, e.g.
- Maintained a **payment processing** back-end (*NodeJS*),
- Devised efficient **data transformation algorithms** for an ETL service (*Django*)

from 07/2017 **Google**, *Play*, Software Engineering Intern, London.
to 02/2018
- Implemented new features on the Google Play back-end and Android client (*Java*)
- Elicited the business needs of an open-ended WebAPK project in cross-team collaboration
- Architected a web service PoC under constraints of Google's existing infrastructure (*Java, Go*)

Select projects

MSc Devised a **graph neural network** model for self-supervised language grounded representation learning and applied it to a downstream **reinforcement learning** task. (*PyTorch*)

BSc Research in **argumentation mining**; analyzed an online debate corpus, devised and evaluated an ML system for automated claim and stance classification. (*SKLearn, NLTK*)

ETL Devised core **data extraction and transformation algorithms**, and integrated them into a large existing codebase. (*Python, Docker*)

QA Implemented NN and traditional ML classifiers for question-answering. Co-authored a paper **published in proceedings of SemEval 2017**. (*Python, SKLearn*)

ML/DL Implemented **foundational ML and DL algorithms** from scratch in the SciPy stack. Analyzed behavior and pitfalls of various techniques. (*NumPy, SciPy, PyTorch*)

RL Reimplementation of *Plannable Approximations to MDP Homomorphisms*. Combines **representation learning and value iteration** in latent space. (*PyTorch*)

Fake News Researched and implemented existing **deep learning based** approaches for fake news detection. Implemented a custom Twitter crawler. (*SpaCy, Keras, ScraPy*)

3D to Lego Devised and implemented an algorithm which parses 3D models from .obj files and converts them to Lego figures. (*Python*)

2D LinAl Came up with and implemented auto-generating assignments testing foundational linear algebra knowledge for the *Interactive Computer Graphics* course. (*JavaScript, WebGL*)

Bioinf Researched and implemented a **MinHash-based method** for approximate mapping of long DNA strands to large reference databases. (*Java*)

Skills

Languages Python, Java, JavaScript, C#, C++

Tools & Misc Git, Linux, Vim; NumPy, SKLearn, PyTorch, Django, NodeJS, Spring