Personal information

Surname(s) / First name(s)	**Podsztavek, Ondřej**
Address(es)	Houdkovice 11 Trnov 517 33 Czech Republic
Telephone(s)	+420 604 236 179
Email(s)	podszond@fit.cvut.cz
Date of birth	May 19, 1995
GitHub	`https://github.com/podondra`

Education

2017–Present **Master's degree**

Czech Technical University in Prague, Czech Republic
Branch of study: Knowledge Engineering

2014–2017 **Bachelor's degree**

Czech Technical University in Prague, Czech Republic
Branch of study: Computer Science
Graduated with honours
Thesis: Deep Learning in Large Astronomical Spectra Archives
Supervisor: Dr. Petr Škoda, Ph.D.
My bachelor's thesis aimed to find emission-line spectra using deep learning. Firstly, I trained and compared two neural networks (dense and VGG-like convolutional network) on spectral data from Ondřejov telescope. Then I used the convolutional network to classify spectra from a huge LAMOST archive. The result showed that the network is able to discover yet unknown stars with interesting physical properties.

Research experience

Nov 2016–Dec 2017 **Researcher**

Astronomical Institute of the Czech Academy of Sciences,
Ondřejov, Czech Republic
Application of Neural Networks to Stellar Spectra
My bachelor's thesis pointed out benefits of using Machine Learning in Astronomy. Therefore, I started to work on an application of different neural network types to stellar spectra which also included a great amount of work in preprocessing and data balancing domains.

Community involvement

Let's talk ML Prague

Let's Talk ML is once a fortnight meeting of students interested in Machine Learning and Artificial Intelligence. The format is usually two short talks followed by discussion. I am a regular visitor and I already had two talks about *Transfer Learning* and *Deep Q-Network*.

Oral presentations

Mar 2018

Reinforcement Learning in Recommendation: Off-policy Policy Evaluation. My presentation at the meeting of Machine Learning and Computational Intelligence Group (ML-CIG), Prague.
Presentation which addressed the evaluation problem of new policy from off-line data in order to ascertain that it can be safely deployed. I showed the problem from point of view of both contextual bandits and full reinforcement learning formalization. I presented different algorithms for off-policy policy evaluation as direct method, inverse propensity score, double robust estimator, important sampling and other modification of these methods.

Jun 2017

Deep Learning in Large Astronomical Archives. Bachelor's thesis presented at Symposium 14 - Astroinformatics: From big data to understanding the universe at large, European Week of Astronomy and Space Science (EWASS 2017), Prague.
Talk about my bachelor's thesis presented at the largest European astronomical conference. I focused the talk on domain adaptation and learning from imbalanced data. Firstly, I emphasized the problem of domain adaptation, which using data from a different telescope tries to train a machine learning algorithm to classify spectra from a totally different telescope. Secondly, I talk about the challenge of imbalanced learning because interesting objects are usually in minority therefore are difficult to learn about and identify. I proposed SMOTE as a solution which I experimentally verified.

Specialized Courses

Nov 2017

From Complexity to Intelligence
Télécom ParisTech, Paris, France
A one-week intensive course concerned with connecting Artificial Intelligence with Kolmogorov complexity and randomness. I was introduced to the mathematical notion of complexity which was then used to study reasoning, perception and decision making.

Personal skills

Programming languages: Python, C, C++
Scientific libraries: TensorFlow, scikit-learn, NumPy, Pandas

Languages

English: CEFR level: *C1 (Proficient user)*
Obtained by International English Language Testing System
Test Report Form: Academic

References

Dr. Petr Škoda, Ph.D.
Senior Researcher in Astroinformatics
Stellar Physics Department
Astronomical Institute of the Czech Academy of Sciences
skoda@sunstel.asu.cas.cz