# OZAN OZYEGEN

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## SUMMARY

Data Science Ph.D. student with 3+ years experience on Deep Learning, Time Series Forecasting and Natural Language Processing methods. Currently, focused on Interpretable AI and Time Series Forecasting in Deep Neural Networks.

## EXPERIENCES

**Ryerson University Data Science Lab, Research Assistant** *09/2018 - Present*

- Research Collaboration with Statistics Canada
  - Explainable AI (XAI) for report classification
    - Research in using XAI methods to minimize the time required for a human agent to classify a given report.
- Research Collaboration with University of Toronto and LG
  - AI Interpretability in Probabilistic Time Series Forecasting
    - Studied and presented various time series forecasting algorithms (DeepAR, N-BEATS, TFT) and AI Interpretability methods (LIME, SHAP). Proposed potential research directions.
    - Current research is focused on improving the interpretability of black-box probabilistic time-series forecasting models.
- Research Collaboration with Communications Research Centre Canada (CRC)
  - Coverage Optimization
    - Implemented, tuned, improved and adapted complex deep learning architectures (UNET, SegNet) for predicting coverage in urban areas. Tested different ideas from feature engineering, transfer learning, data augmentation literatures.
  - Designing Electromagnetic Engineered Surfaces with Generative Adversarial Networks
    - Conducted interdisciplinary research with domain experts at CRC.
    - Designed, implemented and tuned state-of-art machine learning algorithms (cGANs, cDCGANs). Our published results indicate conditional GANs can potentially be used to aid the design of Electromagnetic Engineered Surfaces, improving the accuracy by at least 3 fold compared to previous methods.
  - Dynamic Spectrum Prediction in Land Mobile Radio Bands
    - Achieved real time intelligence for spectrum usage for LMR bands. Lead the team in the implementation of Deep Learning models (LSTM, CNN) in Python. Conducted exploratory analysis, hyperparameter and architecture tuning to improve model performances.

**Artiwise, Data Scientist** *06/2017 - 07/2018*

- Artiwise is a machine learning based text analytics platform that works on the cloud.
- Worked on various NLP (Natural Language Processing) and Data Mining tasks.
- Experience gained:
  - Built the machine learning side of the platform from scratch in Python.
  - Researched and implemented NLP algorithms to improve machine learning based models.
  - Extracted/Parsed/Analyzed data from various sources (Twitter, text, json, xml ...)
  - Feature Engineering using Solr
  - Gave internal training on Numpy, Pandas and Spark
  - Lead a project team of three people

**Talcards, Co-Founder** *09/2016 - 06/2017*

- Talcards is a mobile app that provides question cards from various topics to talk about in real life.
- Established in collaboration with three colleagues.
- Talcards was accepted to the ITU CEKIRDEK Incubation Program.
- Worked on the development of some parts of the Android app in addition to various operations like requirement analysis, search and develop marketing opportunities.

**Derivalabs, Intern** *07/2015 - 08/2015*

- Derivalabs is a Big Data Analytics startup company that provides actionable visitor insight to retail stores.
- Created a visualization using Google Charts and PHP to better understand the data collected from sensors at the retail stores.
- Implemented a login system using Ruby on Rails.

## EDUCATION

**Ryerson University, Toronto, Canada**
PhD in Mechanical and Industrial Engineering *2019 - Present*
MSc in Data Science and Analytics *2018 - 2019*

**Istanbul Technical University, Turkey**
BSc in Computer Engineering *2012 - 2018*

**Wroclaw University of Science and Technology, Poland**
Erasmus exchange student *02/2016 - 07/2016*

## PUBLICATIONS

Scholar Profile

2019 O. Ozyegen, S. Mohammadjafari, E. Kavurmacioglu, J. Maidens, and A. Basar. Experimental results on the impact of memory in neural networks for spectrum prediction in land mobile radio bands. *IEEE Transactions on Cognitive Communications and Networking*, pages 1–1, 2019

2019 Ozan Ozyegen, Emir Kavurmacioglu, Jonathan Ethier, and Ayundefinede Baundefinedar. Generative adversarial networks in designing electromagnetic engineered surfaces for mm-wave band spectrum environments. In *Proceedings of the 29th Annual International Conference on Computer Science and Software Engineering*, CASCON 19, page 148155, USA, 2019. IBM Corp

## SOFTWARE SKILLS AND EXPERIENCE

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|---|---|
| **Python:** | Tensorflow, PyTorch, Keras, MxNet, Scikit-learn, NumPy, SciPy, Pandas, Jupyter Notebook, PySpark |
| **Databases:** | RDBMS (MySQL), NoSQL (MongoDB), Hadoop, Pig, Hive, Spark |
| **Others:** | C, C++, Excel, SPSS, SAS |

## ACADEMIC ACTIVITIES AND VOLUNTARY WORK

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|---|---|
| 2015 - 2017 | IEEE Turkey Esharp Project<br>Volunteered Soft Skills education for IEEE Student Branches, Instructor |
| 2014 - 2015 | ITU IEEE Computer Society, Chairman |
| 2013 - 2014 | ITU IEEE Computer Society, Internal Activity Coordinator |
| 2013 - 2018 | ITU Computer Engineering Class Representitive |

## LANGUAGE SKILLS

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|---|---|
| **English/Turkish:** | Bilingual |
| **Spanish:** | Beginner A2 Level |