DMITRY EFIMOV

SUMMARY

Experienced machine learning engineering leader with 15+ years of experience in solving different data science problems and building machine learning pipelines, including deep understanding of model end-to-end life cycle. Unique combination of excellent knowledge of theoretical aspects and expertise in industrial machine learning with proven records of implementing models resulted in saving incremental $150M from credit and fraud losses.

PROFESSIONAL EXPERIENCE

Amazon September 2021 - present
Senior Manager - Forecasting *New York, NY*

- Lead Core Retail and DL Science team responsible for creating machine learning models to produce national demand forecast worldwide

American Express October 2019 - September 2021
Head of Machine Learning Centre of Excellence (VP) *New York, NY*

- Led the R&D team of machine learning engineering managers and individual contributors who successfully deployed several models with high business impact (RNN default prediction model has been implemented within one year, the model outperforms existed approach and resulted in incremental saving from credit losses of **$40M annually**)
- Provided the guidance on novel ML research directions (such as graph neural networks for transactional fraud detection with potential incremental fraud loss savings of **$20M annually**)
- Collaborated with infrastructure team to drive the process of creating more efficient R&D machine learning computational environment
- Developed machine learning talent strategy; under my supervision several team members have been promoted to the leadership positions (team work resulted in incremental savings from credit and fraud losses of **$150M annually**)
- Played a decision maker role on company investment in machine learning startups

American Express August 2018 - October 2019
Machine Learning Engineering Manager (Director) *New York, NY*

- Led the R&D team of machine learning engineers, provided guidance and support to the team members on their research projects; the implemented models resulted in incremental **$25M** saving from credit losses (one of the example is the model for credit default prediction with limited ground truth information)
- Worked on several innovative ML directions such as semi-supervised learning, sequential models and synthetic data generation that indicated high business impact later (e.g., GAN generated data allowed to essentially increase the revenue on credit limit assignment)

American Express February 2017 - July 2018
Staff Machine Learning Engineer *London, United Kingdom*

- Innovated on novel machine learning approaches, including implementation of the first successful deep learning risk model
- Developed machine learning fraud detection approach that resulted in reducing fraud losses by **$20M annually**
- Created a new solution for US lending customers initial credit line assignment that resulted in incremental **$15M** revenue

Kaggle Grandmaster December 2016 - present

- 3rd place in Santander Customer Satisfaction contest
- 3rd place in Deloitte Australia Rental Prices Prediction
- 2nd place in West Nile Virus Prediction
- 2nd place in Deloitte As the World Churns contest
- 2nd place in KDD Cup: Author-Paper Identification
- 2nd place in Genentech Cervical Cancer Screening contest
- 3rd place in Avito Context Ad Clicks Challenge
- 1st place in American Express Risky Business Challenge
- 3rd place in Amazon Employee Access Challenge
- 2nd place in Predicting the Strength of Social Ties contest

American University of Sharjah September 2012 - June 2017
Assistant Professor *United Arab Emirates*

Lomonosov Moscow State University September 2008 - August 2012
Assistant Professor of Mathematics *Moscow, Russia*

EDUCATION

PhD in Mathematics, Lomonosov Moscow State University *January 2008*
MS in Mathematics, Lomonosov Moscow State University *June 2004*

TECHNICAL SKILLS

- Deep understanding of machine learning techniques for structured and unstructured data including deep learning algorithms (XGBoost, lightgbm, factorization machines, FFN, CNN, RNN, GAN, unsupervised and outlier detection algorithms, dimensionality reduction and model explainability techniques); experience of deployment end-to-end machine learning pipelines; excellent knowledge of cloud systems (AWS, GCP), distributed computations (dask, pyspark) and big data
- **Tools:** Python, C/C++, SQL, Tensorflow/Pytorch, Pyspark, R, Latex

SELECTED PUBLICATIONS

Full list of publications is available at **Google Scholar**, **arXiv**. Author of the course **Applied data mining: theory and appliations**.

- Clements Jillian, Xu Di, Yousefi Nooshin and Efimov Dmitry. **Sequential deep learning for credit risk monitoring with tabular financial data**, 2021, accepted in INFORMS Journal on Applied Analytics.
- Efimov Dmitry, Xu Di, Kong Luyang, Nefedov Alexey and Anandakrishnan Archana. **Using generative adversarial networks to synthesize artificial financial datasets**, NeurIPS, 2019.
- Efimov Dmitry. **Click-Through Rate Prediction - Top-5 Solution For The Avazu Contest**, Mathematica Montisnigri, vol. XXXII (2015): 158-171.
- Efimov Dmitry. **Click-Through Rate Prediction - TOP-5 solution for the Avazu contest.** Paper presented at the 13th International seminar "Mathematical models and modeling in laser plasma processes and advanced science technologies", Petrovac, Montenegro, June 1-6, 2015
- Berengueres Jose, and Efimov Dmitry. **Airline new customer tier level forecasting for real-time resource allocation of a miles program.** Journal of Big Data 1, no. 06 (2014): 1-3. DOI: 10.1186/2196-1115-1-3.
- Efimov Dmitry, Silva Lucas and Solecki Benjamin. **KDD Cup 2013 - Author-Paper Identification Challenge: Second Place Team.** Paper presented at the 19th ACM SIGKDD, KDD Cup Workshop, Chicago, Illinois USA, August 11-14, 2013
- Zaki Nazar, Efimov Dmitry and Berengueres Jose. **Protein complex detection using interaction reliability assessment and weighted clustering coefficient.** BMC Bioinformatics, vol. 14 (2013): 163. DOI: 10.1186/1471-2105-14-163.
- Solecki Benjamin, Silva Lucas and Efimov Dmitry. **KDD Cup 2013 - Author Disambiguation.** Paper presented at the 19th ACM SIGKDD, KDD Cup Workshop, Chicago, Illinois USA, August 11-14, 2013
- Efimov Dmitry, Zaki Nazar, and Berengueres Jose. **Detecting Protein Complexes from Noisy Protein Interaction Data.** Paper presented at the 18th ACM SIGKDD, BioKDD, Beijing, China, August 12-16, 2012
- Zaki Nazar, Berengueres Jose, and Dmitry Efimov. **ProRank: A Method for Detecting Protein Complexes**. Paper presented at the 14th international conference on Genetic and evolutionary computation conference (GECCO'12), pp: 209-216, Philadelphia, Pennsylvania, USA, July 7-11, 2012
- Zaki Nazar, Berengueres Jose and Efimov Dmitry. **Detection of protein complexes using a protein ranking algorithm.** Proteins: Structure, Function, and Bioinformatics, 80, no. 10 (2012): 2459-2468. ISSN: 1097-0134.