

Dr. Oleksandr Shchur

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Summary

Machine Learning Scientist with 7+ years of experience in scientific research & software development with focus on deep learning, probabilistic & statistical modelling, combining specialist knowledge with generalist adaptability. Passionate about converting cutting-edge machine learning techniques into robust, scalable and performant solutions.

Work experience

Applied Scientist 06/2022–present

Amazon Web Services AI, Berlin, Germany

- Leading development of AutoGluon–TimeSeries, an open-source AutoML framework for time series forecasting
- Conducting research projects on foundation models for time series forecasting
- Implemented state-of-the-art deep learning models in PyTorch and developed new features for AutoGluon (automatic data preprocessing, covariates support, advanced cross-validation)
- Took full ownership of setting the roadmap, planning, coordinating the efforts of involved team members, and delivering the features for the AutoGluon releases
- Improved forecast accuracy by 2x and reached 4x faster training and inference time
- Analyzed 20+ customer cases and consulted users on applying and deploying AutoGluon in production, which resulted in improved performance metrics

Key projects:

- Integration of time series foundation models into AWS SageMaker production services
- Introduction of a large-scale ML experimentation solution using SageMaker and MLFlow
- Development of forecasting solutions for intelligent resource allocation, demand forecasting and finance

Research Science Intern 09/2021–12/2021

Facebook AI Research, Remote

- Modeling temporal dynamics of online conversations using probabilistic models
- Applying large language models for analyzing online user-generated content
- Collecting and preprocessing text datasets using publicly available sources, automating data annotation using natural language processing techniques

Applied Science Intern 06/2020–02/2021

Amazon Web Services AI, Berlin, Germany

- Developed a new approach for anomaly detection in event data (NeurIPS 2021)
- Wrote a survey paper on neural temporal point processes (IJCAI 2021)
- Added temporal point process support to the GluonTS forecasting library

Scientific employee 01/2017–06/2022

Technical University of Munich, Germany

- Various research projects on machine learning for temporal and graph data
- Giving lectures & tutorials (Machine Learning, ML for Graphs and Sequential Data)
- Supervised 12 thesis projects and 3 guided research projects

Education

Ph.D. in Computer Science 2017 – 2022

Technical University of Munich, Germany

Advisor: Prof. Stephan Günnemann

M.Sc. in Computational Science and Engineering 2013 – 2016

Technical University of Munich, Germany

GPA: 1.9 (German grading system)

B.Sc. in Aerospace Engineering 2009 – 2013

National Aviation University, Kyiv, Ukraine

GPA: 86/100 (Ukrainian grading system)

Skills

Technical Skills

• Python, PyTorch, Python Scientific Stack, Git, Bash, Docker, Pandas, AWS (SageMaker, Batch, EC2), Metaflow, MLFlow

Languages

• English (full professional proficiency), Russian (native), Ukrainian (native), German (B2)

Selected publications

Chronos: Learning the Language of Time Series
Ansari F., Stella L., Türkmen C., Zhang X., Mercado P., Shen H., Shchur O., et al.
Under review

2024

Add and Thin: Diffusion for Temporal Point Processes
Lüdke D., Biloš M., Shchur O., Lienen M., Günnemann S.
Neural Information Processing Systems (NeurIPS)

2023

AutoGluon-TimeSeries: AutoML for Probabilistic Time Series Forecasting
Shchur O., Türkmen A.C., Erickson N., Shen H., Shirkov A., Hu T., Wang Y.
AutoML Conference

Using Deep Learning for Flexible and Scalable Earthquake Forecasting
Dascher-Cousineau K., Shchur O., Brodsky E., Günnemann S.
Geophysical Research Letters

Detecting Anomalous Event Sequences with Temporal Point Processes
Shchur O., Türkmen A. C., Januschowski T., Gasthaus J., Günnemann S.
Neural Information Processing Systems (NeurIPS)

2021

Neural Temporal Point Processes: A Review
Shchur O., Türkmen A. C., Januschowski T., Günnemann S.
International Joint Conference on Artificial Intelligence (IJCAI)

Fast and Flexible Temporal Point Processes with Triangular Maps
Shchur O., Gao N., Biloš M., Günnemann S.
Advances in Neural Information Processing Systems (NeurIPS)
(Oral presentation, top 1% of submitted works)

2020

Intensity-free Learning of Temporal Point Processes
Shchur O., Biloš M.*, Günnemann S.*
International Conference on Learning Representations (ICLR)
(Spotlight presentation, top 6% of submitted works)

Overlapping Community Detection with Graph Neural Networks
Shchur O., Günnemann S.
Deep Learning on Graphs Workshop, KDD

2019

Dual-Primal Graph Convolutional Networks
Monti F., Shchur O., Bojchevski A., Litany O., Günnemann S., Bronstein M.
Graph Embedding and Mining Workshop, ECML–PKDD

Pitfalls of Graph Neural Network Evaluation
Shchur O., Mumme M.*, Bojchevski A., Günnemann S.*
Relational Representation Learning Workshop, NeurIPS

2018

Anomaly Detection in Car-Booking Graphs
Shchur O., Bojchevski A., Farghal M., Günnemann S., Saber Y.
Workshop on Data-driven Intelligent Transportation, ICDM

NetGAN: Generating Graphs via Random Walks
Bojchevski A., Shchur O.*, Zügner D.*, Günnemann S.*
International Conference on Machine Learning (ICML)

* equal contribution

Scientific community service

Reviewer

• TMLR, ICML, NeurIPS, ICLR, KDD, AAAI, Nature