

Chi Zhao (Vector)

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EDUCATION

Saint Petersburg State University <i>PhD in Applied Mathematics and Control Processes</i> <i>Thesis Title: "Modeling of binary opinion dynamics in social networks of complex configurations"</i>	Sept. 2021 – Jun. 2025 Saint Petersburg, Russia Defended in Apr. 2025
Saint Petersburg State University <i>M.S. in Applied Mathematics and Informatics (GPA: 4.9/5.0)</i>	Sept. 2019 – Jun. 2021 Saint Petersburg, Russia
Beijing Institute of Technology <i>ACM Summer Camp</i>	Jul. 3 – 28, 2017 Beijing, China
Yanan University <i>B.S. in Computer Science (GPA: 3.1/4.0)</i>	2015 – 2019 Yanan, China

WORKING EXPERIENCE

Huawei Inc. <i>Researcher</i>	Sep. 2021 – Present Saint Petersburg, Russia
Wisedu Inc. <i>Software Engineer</i>	Sep. 2016 – May. 2019 Yanan, China

PROJECT EXPERIENCE

* Professional model data governance/Valuable training data selection <i>Project leader</i> <i>Project focused on improving model performance through data governance and optimized feature/training data selection.</i> <i>Sampled 60M representative records from 1.8B wireless data using custom algorithms.</i> <i>Boosted model accuracy by 22% through self-developed diversity sampling algorithms.</i> <i>Accelerated training by 10% by removing 20% redundant features with self-developed feature importance algorithms.</i>	2025 Saint Petersburg, Russia
* Internal columnar storage algorithm <i>Researcher</i> <i>High-performance, highly flexible columnar storage lossless compression algorithm</i> <i>The algorithm will be commercialized to store base station data.</i> <i>LTE (4G) data 30% CR, NR (5G) data 40% CR, without loss any performance.</i>	2023–2024 Saint Petersburg, Russia
Russian Science Foundation Grant No. 22-21-00346 <i>Researcher</i> <i>Completed simulation of two-layer opinion dynamics models, focusing on expressed and private opinions.</i>	2023 Saint Petersburg, Russia
* Elastic expansion algorithm for internal distributed file storage systems <i>Researcher</i> <i>Enabled seamless HOFs multi-node expansion using HRW Hashing with minimal data movement and no performance loss.</i> <i>Improved system reliability by ensuring data access continuity even after hash ring loss.</i>	2023 Saint Petersburg, Russia
* Packet/Router data compression <i>Researcher</i> <i>This project achieved 85% CR without loss (Save 7x disk usage).</i>	2023 Saint Petersburg, Russia
* Wireless data compression <i>Researcher</i> <i>This project achieved 96% CR through lossy compression.</i>	2021–2022 Saint Petersburg, Russia
* SparkSQL query optimization <i>Researcher</i> <i>This project speeds up query execution by 50% through predicate pushdown and optimization of data structures.</i>	2021 Saint Petersburg, Russia

PATENT / COPYRIGHT CERTIFICATES

A program for modeling the opinion dynamics in two-layer networks

Russian Computer Software Copyright Registration Certificate

2023

[NO. 2023661532](#)

Online News Classification System Based on Convolutional Neural Network

Chinese Computer Software Copyright Registration Certificate

2018

NO. 2831192

OPEN SOURCE PROJECTS

[ShapG](#) | *python · feature importance algorithm · centrality measures*

- A Python package for feature importance algorithms based on Shapley values.
- This package can also be used to calculate the centrality in the graph.

[News Classification](#) | *python · NLP · CNN · text classification*

- Online News Classification System Based on Convolutional Neural Network.
- This project was awarded the provincial 3rd prize in the 2018 national computer design competition.

SKILLS

Programming: Python · C/C++ · Go · Rust · Matlab/Octave · Julia · R · SQL · \LaTeX

ML Libraries: Tensorflow · PyTorch · Keras · Scikit-Learn

Developer Tools: Git · Docker · Google Cloud Platform

OS: Windows · MacOS · Arch Linux

Languages: Chinese (native), and English (professional working proficiency)

RESEARCH INTERESTS

Graph Algorithms · Centrality Measures · Machine learning · Explainable Artificial Intelligence · Probability Theory · Statistics
Data Compression · Coding Theory · Time Series Analysis · Optimization · Stochastic Modeling · Stochastic Processes

TEACHING

Applied Statistics in R

Teaching assistant

Saint-Petersburg, Russia

2024

Statistical Decisions and Econometrics

Teaching assistant

Saint-Petersburg, Russia

2022

COMMUNITY SERVICE

Reviewer for journals and conferences

- Engineering Applications of Artificial Intelligence (EAAI)
- International Conference On Computational Optimization (ICOMP)

SELECTED PUBLICATIONS

1. **Zhao C.**, Liu J., Parilina E. M. Complete-to-Sparse: A Novel Graph Construction Strategy for Efficient ShapG // *Mathematical Optimization Theory and Operations Research*. – Cham : Springer Nature Switzerland. – 2025. – P. 180–194.
2. **Zhao C.**, Liu J., Parilina E. M. ShapG: new feature importance method based on the Shapley value // *Engineering Applications of Artificial Intelligence*. – 2025. – May. – Vol. 148, 110409. (**Q1**, **IF: 8.0**)
3. **Zhao C.**, Parilina E. M. Centrality measures and opinion dynamics in two-layer networks with replica nodes // *Computers and Operations Research*. – 2026. – Jan. – Vol. 185, 107245. (**Q1**, **IF: 4.3**)
4. **Zhao C.**, Parilina E. M. Analysis of consensus time and winning rate in two-layer networks with hypocrisy of different structures // *Vestnik of Saint Petersburg University. Applied Mathematics. Computer Science. Control Processes*. – 2024. – Vol. 20, no. 2. – P. 170-192.
5. **Zhao C.**, Parilina E. M. Opinion Dynamics in Two-Layer Networks with Hypocrisy // *Journal of the Operations Research Society of China*. – 2024. – Mar. – Vol. 12, no. 1. – P. 109-132. (**Q2**)
6. **Zhao C.**, Parilina E. M. Network Structure Properties and Opinion Dynamics in Two-Layer Networks with Hypocrisy // *Mathematical Optimization Theory and Operations Research*. – Cham : Springer Nature Switzerland. – 2024. – P. 300-314.
7. **Zhao C.**, Parilina E. M. Consensus time and winning rate based on simulations in two-layer networks with hypocrisy // *2023 7th Scientific School Dynamics of Complex Networks and their Applications (DCNA)*. – 2023. – P. 68-71.

CONFERENCES

Mathematical Optimization Theory and Operations Research (MOTOR 2025) <i>Oral Presentation</i>	Novosibirsk, Russia <i>July. 07 - 11, 2025</i>
Game Theory and Management (GTM 2025) <i>Oral Presentation</i>	Saint-Petersburg, Russia <i>July. 2 - 4, 2025</i>
International Conference On Computational Optimization (ICOMP 2024) <i>Visitor</i>	Innopolis, Russia <i>Oct. 10 - Oct. 12, 2024</i>
Mathematical Optimization Theory and Operations Research (MOTOR 2024) <i>Oral Presentation</i>	Omsk, Russia <i>June. 30 - July. 06, 2024</i>
Game Theory and Management (GTM 2024) <i>Oral Presentation</i>	Saint-Petersburg, Russia <i>June. 26 - 28, 2024</i>
Dynamics of Complex Networks and their Applications (DCNA 2023) <i>Poster Presentation</i>	Kaliningrad, Russia <i>Sep. 18 - 20, 2023</i>
Game Theory and Management (GTM 2023) <i>Oral Presentation</i>	Saint-Petersburg, Russia <i>June. 28 - 30, 2023</i>
Control Processes and Stability 2022 <i>Oral Presentation</i>	Saint-Petersburg, Russia <i>Apr. 4 - 8, 2022</i>
Control Processes and Stability 2021 <i>Oral Presentation</i>	Saint-Petersburg, Russia <i>Apr. 5 - 9, 2021</i>

HONOURS & AWARDS

<i>Name</i>	<i>Placing</i>	<i>Scope</i>	<i>Awarder</i>	<i>Year</i>
General Development Star	-	Huawei Inc.	General development department	Oct. 2024
General Development Star	-	Huawei Inc.	General development department	Jun. 2023
General Development Star	-	Huawei Inc.	General development department	Oct. 2022
President's Award (Team)	-	Huawei Inc.	MAE-M department	Dec. 2021
Diploma with distinction	-	University	Saint Petersburg State University	Jun. 2021
Excellent Graduation Thesis (Design)	-	University	Yanan University	Jun. 2019
Excellent Graduate	-	University	Yanan University	Jun. 2019
Merit Student Scholarship	-	University	Yanan University	Dec. 2018
China Software Cup Competition	3 rd	China	China Software Cup Organizing Committee	Oct. 2018
Computer Design Competition	3 rd	Northwest China	Northwest University (China)	May. 2018
Mathematical Contest in Modeling	2 nd	Shaanxi	China Society for Industrial and Applied Mathematics	Dec. 2017
Mathematics Competition	3 rd	Shaanxi	Chinese Mathematical Society	Nov. 2016