

Chi Zhao (Vector)

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EDUCATION

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

WORKING EXPERIENCE

Saint Petersburg State University	Dec. 2025 – Present
<i>Assistant professor</i>	<i>Saint Petersburg, Russia</i>
Huawei Inc.	Sep. 2021 – Dec. 2025
<i>R&D Engineer</i>	<i>Saint Petersburg, Russia</i>
Wisedu Inc.	Sep. 2016 – May. 2019
<i>Software Engineer</i>	<i>Yanan, China</i>

PROJECT EXPERIENCE

* Professional model data governance/Valuable training data selection	2025
<i>Project leader</i>	<i>Saint Petersburg, Russia</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 diversity sampling algorithms.</i>	
<i>Boosted model accuracy by 22% using custom sampling and anomaly detection algorithms.</i>	
<i>Accelerated training by 10% via custom feature importance algorithms that removed 20% redundant features.</i>	
* Internal columnar storage algorithm	2023–2024
<i>R&D Engineer</i>	<i>Saint Petersburg, Russia</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>	
Russian Science Foundation Grant No. 22-21-00346	2023
<i>Researcher</i>	<i>Saint Petersburg, Russia</i>
<i>Completed simulation of two-layer opinion dynamics models, focusing on expressed and private opinions.</i>	
* Elastic expansion algorithm for internal distributed file storage systems	2023
<i>R&D Engineer</i>	<i>Saint Petersburg, Russia</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>	
* Packet/Router data compression	2023
<i>R&D Engineer</i>	<i>Saint Petersburg, Russia</i>
<i>This project achieved 85% CR without loss (Save 7x disk usage).</i>	
* Wireless data compression	2021–2022
<i>R&D Engineer</i>	<i>Saint Petersburg, Russia</i>
<i>This project achieved 96% CR through lossy compression.</i>	
* SparkSQL query optimization	2021
<i>R&D Engineer</i>	<i>Saint Petersburg, Russia</i>
<i>This project speeds up query execution by 50% through predicate pushdown and optimization of data structures.</i>	

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 · L^AT_EX

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

Saint-Petersburg, Russia

Teaching assistant

2024

Statistical Decisions and Econometrics

Saint-Petersburg, Russia

Teaching assistant

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. Strategic inputs: feature selection from game-theoretic perspective. // *arXiv preprint arXiv:2510.24982*. – 2025.
2. Zhao C., Liu J., Parilina E. M. The Shapley Value Contribution to Explainable Artificial Intelligence: A Comprehensive Survey // *Dynamic Games and Applications*. – 2025. – Oct. – P. 1-38. (**Q2**)
3. 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.
4. 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**)
5. 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**)
6. 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.
7. 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**)

8. 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.
9. 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

International Conference On Computational Optimization (ICOMP 2025)	Abu Dhabi, UAE
<i>Poster Presentation</i>	Oct. 17 - 19, 2025
Mathematical Optimization Theory and Operations Research (MOTOR 2025)	Novosibirsk, Russia
<i>Oral Presentation</i>	July. 07 - 11, 2025
Game Theory and Management (GTM 2025)	Saint-Petersburg, Russia
<i>Oral Presentation</i>	July. 2 - 4, 2025
14th International Society of Dynamic Games (ISDG) Workshop	Yerevan, Armenia
<i>Oral Presentation</i>	June. 11 - 13, 2025
International Conference On Computational Optimization (ICOMP 2024)	Innopolis, Russia
<i>Visitor</i>	Oct. 10 - 12, 2024
Mathematical Optimization Theory and Operations Research (MOTOR 2024)	Omsk, Russia
<i>Oral Presentation</i>	June. 30 - July. 06, 2024
Game Theory and Management (GTM 2024)	Saint-Petersburg, Russia
<i>Oral Presentation</i>	June. 26 - 28, 2024
Dynamics of Complex Networks and their Applications (DCNA 2023)	Kaliningrad, Russia
<i>Poster Presentation</i>	Sep. 18 - 20, 2023
Game Theory and Management (GTM 2023)	Saint-Petersburg, Russia
<i>Oral Presentation</i>	June. 28 - 30, 2023
Control Processes and Stability 2022	Saint-Petersburg, Russia
<i>Oral Presentation</i>	Apr. 4 - 8, 2022
Control Processes and Stability 2021	Saint-Petersburg, Russia
<i>Oral Presentation</i>	Apr. 5 - 9, 2021
The Computing Conference 2017	Hangzhou, China
<i>Visitor</i>	Oct. 11 - 14, 2017
Yiban Developer Conference 2017	Shanghai, China
<i>Developer</i>	Aug. 2017
Language & Intelligence Summit 2017	Beijing, China
<i>Visitor</i>	July 23, 2017

HONOURS & AWARDS

Name	Placing	Scope	Awarder	Year
Timely Incentives	-	Huawei Inc.	Huawei Chebyshev Research Center ADN AI Lab	Dec. 2025
AI4OPT Competition Best Paper	1 st	ICOMP 2025	ICOMP 2025 Conference Organizing Committee	Oct. 2025
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