

# Chi Zhao (Vector)

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## EDUCATION

<b>Saint Petersburg State University</b> <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
<b>Saint Petersburg State University</b> <i>M.S. in Applied Mathematics and Informatics (GPA: 4.9/5.0)</i>	Sept. 2019 – Jun. 2021 Saint Petersburg, Russia
<b>Beijing Institute of Technology</b> <i>ACM Summer Camp</i>	Jul. 3 – 28, 2017 Beijing, China
<b>Yanan University</b> <i>B.S. in Computer Science (GPA: 3.1/4.0)</i>	2015 – 2019 Yanan, China

## WORKING EXPERIENCE

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

## PROJECT EXPERIENCE

<b>* Professional model data governance/Valuable training data selection</b> <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 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>	2025 Saint Petersburg, Russia
<b>* Internal columnar storage algorithm</b> <i>R&amp;D Engineer</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
<b>Russian Science Foundation Grant <a href="#">No. 22-21-00346</a></b> <i>Researcher</i> <i>Completed simulation of two-layer opinion dynamics models, focusing on expressed and private opinions.</i>	2023 Saint Petersburg, Russia
<b>* Elastic expansion algorithm for internal distributed file storage systems</b> <i>R&amp;D Engineer</i> <i>Enabled seamless HDFS 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
<b>* Packet/Router data compression</b> <i>R&amp;D Engineer</i> <i>This project achieved 85% CR without loss (Save 7x disk usage).</i>	2023 Saint Petersburg, Russia
<b>* Wireless data compression</b> <i>R&amp;D Engineer</i> <i>This project achieved 96% CR through lossy compression.</i>	2021–2022 Saint Petersburg, Russia
<b>* SparkSQL query optimization</b> <i>R&amp;D Engineer</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 3<sup>rd</sup> 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. 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

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

## HONOURS & AWARDS

<i>Name</i>	<i>Placing</i>	<i>Scope</i>	<i>Awarder</i>	<i>Year</i>
Timely Incentives	-	Huawei Inc.	Huawei Chebyshev Research Center ADN AI Lab	Dec. 2025
AI4OPT Competition Best Paper	1 <sup>st</sup>	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 <sup>rd</sup>	China	China Software Cup Organizing Committee	Oct. 2018
Computer Design Competition	3 <sup>rd</sup>	Northwest China	Northwest University (China)	May. 2018
Mathematical Contest in Modeling	2 <sup>nd</sup>	Shaanxi	China Society for Industrial and Applied Mathematics	Dec. 2017
Mathematics Competition	3 <sup>rd</sup>	Shaanxi	Chinese Mathematical Society	Nov. 2016