Nina Klimenkova

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Research Interest

Data Discovery and Integration, Human-in-the-loop, Table Unionability, Meta-cognitive Analysis, Large Language models, Collaborative Intelligence, Information Retrieval

Education

Worcester Polytechnic Institute, Data Science Program, Worcester, MA, USA
PhD in Data Science August 2024 - Present
Adviser: Dr. Roee Shraga
Research summary: Investigation of human and LLM judgments of table unionability in open data, modeling meta-cognitive signals (confidence, decision time, interaction traces) to calibrate labels and improve table discovery, union search, and integration.

University of Tennessee at Chattanooga, Gary Rollins College of Business, Chattanooga, TN, USA
Master of Business Administration: Business Analytics August 2022 - May 2024

- *GPA: 3.8*
- *Graduate Assistant for International & Graduate programs office and Center for Global Education & Finance Department*

Taras Shevchenko National University of Kyiv, Ukraine
Bachelor of Computer Science with Data Analytics concentration September 2018 - July 2022

Experience

Worcester Polytechnic Institute, Worcester, MA, USA January 2025 - Present

Research Assistant

- Designed and run a user study about table unionability
- Studied human and LLM judgments of table unionability in open data by analyzing meta-cognitive signals
- Calibrated labels by combining human consensus with classical ML
- Evaluated LLM performance with human/meta-cognitive, demonstrating the value of hybrid pipelines.

Worcester Polytechnic Institute, Worcester, MA, USA August 2024 – December 2024

Teaching Assistant - Knowledge Discovery and Data Mining

- Leaded weekly office hours on data preprocessing, feature engineering, classification, clustering, pattern mining, anomaly detection, text/graph mining, and evaluation
- Created clear rubrics and grade assignments/exams for a cohort of 30 students
- Coordinated project milestones by providing timely feedback
- Supported exam logistics and academic integrity

Lee-Smith, Inc., Chattanooga, TN, USA June 2023 – August 2023

Data Analytics Intern

- Implemented a new software ensuring data accuracy and proper documentation.
- Collaborated with team members across departments to identify patterns, trends, and insights from the data.
- Created dashboards to communicate data insights effectively, used tools like Excel and Power BI.
- Participated in evaluating the effectiveness of data analysis techniques and propose improvements.

University of Tennessee at Chattanooga August 2022 – April 2023

Graduate Teaching/Administrative/Research Assistant

- Conducted research and analysis in the areas of academic and professional success.
- Performed "Individual personal development and growth" lectures.
- Assisted professors in assignments grading and class participation grading.

Teleperformance December 2021 – July 2022

Database Administrator

- Achieved efficiency in completing daily and monthly reports about business performance.
- Created databases for business to organize daily and monthly reports.
- Prepared productivity analysis to improve business performance.
- Explained working principles of new software and successfully implemented it for a new project.

Cybercalm website September 2019 – August 2021

Copywriter

- Conducted research to create original and compelling content about cybersecurity and AI
- Edited and proofed materials before delivering to the management team

Publications

- **Nina Klimenkova**, Sreeram Marimuthu, and Roee Shraga. 2026. Human-Centered Exploration of Table Unionability. Proceedings of the VLDB Endowment 19, 9 (2026), 2099–2112. https://doi.org/10.14778/3819518.3819537

- Ma, N., Labib, R., Amor, R., Chong, A., Fan, C., Forth, K., Fu, X., Fuchs, S., Hong, T., **Klimenkova, N.,** Koo, J., Li, S., McCullough, S. T., Park, J. Y., Shraga, R., Yoon, S., Zhang, L., & Zhang, Y. (2026). Ten questions concerning Large Language Models (LLMs) for building applications. Building and Environment, 291, 114260. https://doi.org/10.1016/j.buildenv.2026.114260

- A. Santos, **N. Klimenkova** and R. Shraga, "Woman-in-the-Loop: AI-Driven Mentorship Matching System," *2025 IEEE MIT Undergraduate Research Technology Conference (URTC)*, Cambridge, MA, USA, 2025, pp. 1-5, doi: 10.1109/URTC68753.2025.11533126.

- Marimuthu, S., **Klimenkova, N.**, & Shraga, R. (2025). Humans, Machine Learning, and Language Models in Union: A Cognitive Study on Table Unionability. In *HILDA '25: Workshop on Human-In-the-Loop Data Analytics* (pp. 1–7). ACM. https://doi.org/10.1145/3736733.3736740

- Suprun, O., **Klimenkova, N.**, Melnyk, M., & Lavriy, S. (2021). Forecasting and Analysis of Online Orders Rejections Using Data Mining Algorithms and Penalty Function. In *2021 IEEE 3rd International Conference on Advanced Trends in Information Theory (ATIT)*. IEEE. https://doi.org/10.1109/atit54053.2021.9678868

- **Klimenkova, N**., Suprun, O., Lavrii, S. P. (2021). Prediction of internet orders rejections by customers using the approaches of machine learning. *Security, Fault Tolerance, Intelligence: Proceedings of the IV International Conference ICSFTI2021, Kyiv, Ukraine, May 12, 2021* (pp. 86–89).

- Suprun, O., & **Klimenkova, N**. (2020). IT Audit as a Key Component of Information Systems Effectiveness and Data Security. In Information Technology and Interactions (Satellite): Conference Proceedings (pp. 229–230). Kyiv: Stylos. ISBN 978-966-2399-61-5.

Professional Service & Mentoring

WiDS Ambassador — Women in Data Science (WiDS) Worldwide, Worcester, MA August 2024 – Present

Represent WiDS in the campus/community; plan and host events/meetups that support women currently in data science and inspire future participants.

PhD Mentor — WPI Data Science REU, Worcester, MA Summer 2025,2026

- *Mentored an undergraduate through a 10 week summer research project in data science/AI*
- *Set milestones, ran weekly stand-ups, and coached on Python*
- *Guided literature review and experiment design, emphasizing methodology and model evaluation*

Core Competencies and General Skills

Programming: Python, R, SAS, C++, SQL, Java
Tools and Frameworks: Pytorch, Knowledge Graphs, Large Language Models, Hadoop MapReduce, Spark, Latex, PowerBI, Tableau, AWS