

# Dennis V. Startsev

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[info@dennisstartsev.com](mailto:info@dennisstartsev.com)

## Education

**University of Nebraska–Lincoln**, Lincoln, NE

*Doctor of Philosophy (Ph.D.), Biochemistry – Systems Immunology* | Aug 2024 – Present

Dissertation: Multi-scale Mathematical Modeling of Immune Cell Behavior

**University of Nebraska–Lincoln**, Lincoln, NE

*Bachelor of Science, Mathematics* | May 2024

## Awards & Honors

- STEM CONNECT Scholarship (NSF), 2021 – Present
- Dean's List, UNL, 2020 – Present

## Publications

1. Immune Digital Twin Blueprint: A Comprehensive Mechanistic Model of the Human Immune System (2024). Co-author.

## Research Experience

**University of Nebraska–Lincoln, Helikar Lab** | Lincoln, NE

*Graduate Researcher, Systems Immunology* | Aug 2024 – Present

- Lead projects on immune digital twin development.
- Develop multi-scale mathematical models integrating agent-based and ODE frameworks to predict dendritic-cell-mediated immune responses.
- Assistance on the Immunometabolism project.

*Undergraduate Researcher, Biochemistry–Bioinformatics* | May 2022 – Aug 2024

- Assisted in literature curation and construction of signaling networks for the Digital Twin project.
- Mentoring junior researchers
- Managed a team integrating metabolic and signaling networks.

## Selected Projects

- Immune Digital Twin (2022 – Present): mechanistic simulation of human immune responses.
- Immunometabolism (2023 – Present): mapping metabolic rewiring across immune cell subsets.
- Multi-scale Mathematical Modeling of Immune Cell Behavior (2024 – Present): dissertation research integrating signaling, metabolism, and spatial dynamics.
- Unbiased Article Analyzer (2024-present): Python pipeline of automatic 10000+ article analysis

## Technical Skills

- Bioinformatics: signaling modeling, metabolic model analysis, single-cell RNA-seq
- Python: NumPy, SciPy, pandas, matplotlib
- Modeling: agent-based (NetLogo), ODE (Python, MATLAB)
- Protein Structural Analysis: PyMOL, AlphaFold2
- Statistical Data Analysis: R, Python (statsmodels, scikit-learn)

## Teaching Experience

**University of Nebraska–Lincoln**, Lincoln, NE

*Teaching Assistant, Russian* | Aug 2021 – May 2022

Delivered weekly lectures on Russian culture and provided grammar support for RUSS 304 & RUSS 331.

**Southeast Community College**, Lincoln, NE

*Private Tutor, Mathematics* | Jan 2020 – Dec 2020

Provided one-on-one exam preparation for Calculus I students.

## References

Contact information upon request

- Dr. Tomas Helikar
- Dr. Jim Lewis
- Dr. Sara Aghamiri
- Dr. Bhanwar Puniya