

Chandan Tankala

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Research Interests

Mathematical foundations of AI and machine learning: stochastic optimization algorithms, neural networks theory, Markov chain algorithms, generative AI algorithms. Recent interests include reinforcement learning and applications of AI to real-world problems.

Education

University of Oregon

Ph.D. in Mathematics

Eugene, OR

2018–2025

○ **Advisor:** Dr. Krishnakumar Balasubramanian

○ **Thesis:** *Mean field Langevin dynamics, mean field neural networks, and mean field Ising models*

Texas A&M University

M.S. in Geophysics

College Station, TX

2010–2012

○ **Advisor:** Dr. Robert Weiss

National Institute of Technology

Bachelor of Engineering

Kurukshetra, India

2005–2009

Awards

2011: Best Poster Presentation Award, British Petroleum Summer Internship

2007: Students-Undergraduate Research Graduate Excellence (SURGE) program, Indian Institute of Technology, Kanpur

Publications

2026: Dense Associative Memory on the Bures-Wasserstein Space

Chandan Tankala, Krishnakumar Balasubramanian

International Conference on Learning Representations (ICLR) · [arXiv:2509.23162](#)

2025: Beyond propagation of chaos: A stochastic algorithm for mean field optimization

Chandan Tankala, Dheeraj M. Nagaraj, Anant Raj

Conference on Learning Theory (COLT) · [arXiv:2503.13115](#)

2023: Fast mixing of a randomized shift-register Markov chain

David A. Levin, Chandan Tankala

Journal of Applied Probability 60(1): 253-266 · [arXiv:2109.05387](#)

Manuscripts in Preparation

Fast sampling from the Curie-Weiss Ising model using informed Markov chains

Chandan Tankala, Quan Zhou, Krishnakumar Balasubramanian

In preparation for submission

Mean field optimization using interacting particle systems

Chandan Tankala, Dheeraj M. Nagaraj, Anant Raj

In preparation for submission

Dense Associative Memory on the Bures-Wasserstein Space II

Chandan Tankala, Krishnakumar Balasubramanian

In preparation for submission

Industry Experience

British Petroleum, Seismic Imaging R&D

Geophysicist

Houston, TX

2012–2015

- Developed algorithms for inverse problems and seismic imaging
- Implemented stochastic optimization techniques for large-scale signal processing
- Applied machine learning methods to geophysical data analysis

British Petroleum, Seismic Imaging R&D

Geophysicist Intern

Houston, TX

Summer 2011

- Research on computational methods for seismic data processing

Invited Talks

Mar 2025: University of California, Santa Barbara

Feb 2025: Oregon State University, Corvallis

Mar 2023: University of Washington, Seattle

Teaching Experience

University of Oregon (2018–2023).....

Instructor: Calculus I, II, III · Business Calculus · College Algebra · Introduction to Statistics

Taught 18 courses over 6 years, consistently receiving positive student evaluations

Selected Conferences & Workshops

2023: Pacific Northwest Probability Seminar, University of Washington

2022: Pacific Northwest Probability Seminar, University of Washington

2021: CRM-PIMS Summer School in Probability (Virtual)

2020: Online Open Probability School, University of British Columbia

2019: Stochastic Processes and Applications, Northwestern University

Technical Skills

Languages: Python, C++, SQL, MATLAB, R

ML/DL: PyTorch, TensorFlow, JAX, NumPy, SciPy, scikit-learn

Tools: Git, Linux, HPC clusters, Jupyter, LaTeX

References

Professor Krishnakumar Balasubramanian

University of California, Davis

Professor Robert Weiss

Virginia Tech, Blacksburg

Dr. Dheeraj M. Nagaraj

Research Scientist

Google DeepMind

Professor Quan Zhou

Texas A&M University, College Station