Yingcong Li

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WORK EXPERIENCE

- **New Jersey Institute of Technology**
  Assistant Professor in Data Science (Sep. 2025 - Present)

EDUCATION

- **University of Michigan, Ann Arbor**
  PhD in Electrical Engineering and Computer Science (Jan. 2024–Aug. 2025)
- **University of California, Riverside**
  PhD in Electrical and Computer Engineering (Jun. 2020–Dec. 2023)
  MS in Electrical and Computer Engineering (Sep. 2019–Jun. 2020)
- **University of Science and Technology of China**
  BS in Electrical Engineering and Information Science (Jun. 2015–Sep. 2019)

RESEARCH INTERESTS

- **Mathematical Foundations of Sequence Models**
- **Optimization and Statistical Learning Theory**
- **Data and Compute Efficiency in LLMs**
- **Interdisciplinary Machine Learning Applications**

HONORS & AWARDS

- **ITA 2025 Sea Prize** (2025)
- **CPAL Rising Star Award** (2025)
- **KAUST Rising Stars in AI Symposium 2025** (2025)
- **NeurIPS 2023 Scholar Award** (2023)
- **AAAI-23 Student Scholarship** (2023)
- **UCR Dean's Distinguished Fellowship Award** (2020–2021)
- **USTC Bronze Award of Scholarship for Undergraduates** (2017 & 2016)

PUBLICATIONS

Google scholar: https://scholar.google.com/citations?user=9uWgjIUAAAAJ&hl=en&oi=ao

* Equal contribution.

5 NeurIPS (1 spotlight), 2 ICML, 3 AAAI, 2 AISTATS papers

[1]. Xuechen Zhang, Zijian Huang, Yingcong Li, Chenshun Ni, Jiasi Chen, and Samet Oymak. “BREAD: Branched Rollouts from Expert Anchors Bridge SFT & RL for Reasoning”, **NeurIPS** 2025.

[2]. Yingcong Li, Xiangyu Chang, Muti Kara, Xiaofeng Liu, Amit Roy-Chowdhury, and Samet Oymak. “When and How Unlabeled Data Provably Improve In-Context Learning”, **NeurIPS** 2025.

[3]. Yingcong Li, Davoud Ataee Tarzanagh, Ankit Singh Rawat, Maryam Fazel, Samet Oymak. “Gating is Weighting: Understanding Gated Linear Attention through In-context Learning”, **COLM** 2025.

[4]. Xiangyu Chang, Yingcong Li, Muti Kara, Samet Oymak, Amit Roy-Chowdhury. “Provable Benefits of Task-Specific Prompts for In-context Learning”, **AISTATS** 2025.

[5]. Yingcong Li, M. Ankit Singh Rawat and Samet Oymak. “Fine-grained Analysis of In-context Linear Estimation”, **NeurIPS** 2024.

[6]. Yingcong Li*, Yixiao Huang*, M. Emrullah Ildiz, Ankit Singh Rawat and Samet Oymak. “Mechanics of Next Token Prediction with Self-Attention”, **AISTATS** 2024.

[7]. M. Emrullah Ildiz, Yixiao Huang, Yingcong Li, Ankit Singh Rawat, and Samet Oymak. “From Self-Attention to Markov Models: Unveiling the Dynamics of Generative Transformers” **ICML** 2024.

[8]. Yingcong Li, Xupeng Wei, Haonan Zhao, and Taigao Ma. "Can Mamba In-Context Learn Task Mixtures?" In-Context Learning Workshop @ **ICML** 2024.

[9]. Tarzanagh, Davoud Ataee*, Yingcong Li*, Christos Thrampoulidis, and Samet Oymak. “Transformers as Support Vector Machines”, M3L Workshop @ **NeurIPS** 2023.

[10]. Tarzanagh, Davoud Ataee, Yingcong Li, Xuechen Zhang, and Samet Oymak. “Max-Margin Token Selection in Attention Mechanism”, **NeurIPS spotlight** (top 3%) 2023.

[11]. Yingcong Li, Kartik Sreenivasan, Angeliki Giannou, Dimitris Papailiopoulos, and Samet Oymak. “Dissecting Chain-of-Thought: Compositionality through In-Context Filtering and Learning”, **NeurIPS** 2023.

[12]. Yingcong Li, M. Emrullah Ildiz, Dimitris Papailiopoulos, Samet Oymak “Transformers as Algorithms: Generalization and Stability in In-Context Learning”, **ICML** 2023.

[13]. Yingcong Li, Samet Oymak “Provable Pathways: Learning Multiple Tasks over Multiple Paths”, **AAAI** 2023.

[14]. Yuzhen Qin, Yingcong Li, Fabio Pasqualetti, Maryam Fazel, Samet Oymak “Stochastic Contextual Bandits with Long Horizon Rewards”, **AAAI** 2023.

[15]. Yingcong Li and Samet Oymak, “On the Fairness of Multitask Representation Learning”, **ICASSP** 2023.

[16]. Yingcong Li, Mingchen Li, M Salman Asif, Samet Oymak “Provable and Efficient Continual Representation Learning” arXiv preprint, 2022.

[17]. Xiangyu Chang*, Yingcong Li*, Samet Oymak, Christos Thrampoulidis “Provable Benefits of Overparameterization in Model Compression: From Double Descent to Pruning Neural Networks”, **AAAI** 2021.

TALKS

- **Invited Talk at Statistics Seminar, New Jersey Institute of Technology** (Sep. 2025)
  “Data, Architecture & Algorithms in In-Context Learning”
- **Talk at KAUST Rising Stars in AI Symposium 2025** (Apr. 2025)
  “Transformers as Support Vector Machines”

- **Talk at CPAL 2025 as a Rising Star** (Mar. 2025)
  "Transformers as Support Vector Machines"
- **Talk at ITA 2025 workshop on the Graduation Day** (Feb. 2025)
  "Understanding Language Models: Optimization, Architecture and Emergent Abilities"
- **Invited talk at ICML 2024 1st ICL workshop** (Jul. 2024)
  "Exploring Model Expressivity and Optimization Landscape in in-context Learning"
- **Guest lecture at UMich EECS 553: Machine Learning** (Oct. 2023)
  "Understanding In-context Learning and Chain-of-thought"
- **Guest lecture at UCR EE/CS228: Introduction to Deep Learning** (Jun. 2023)
  "Prompt as Parameter-efficient Transfer Learning"
- **Oral Presentation at AAAI 2023** (Feb. 2023)
  "Provable Pathways: Learning Multiple Tasks over Multiple Paths"

PROFESSIONAL ACTIVITIES

- **Courses Taught**
  - DS680 - Natural Language Processing, NJIT (Fall 2025)
- **Student Mentorship**
  - Kaustubh Pethkar, PhD (Fall 2025 - Present)
  - Xiyuan Chang, PhD (Spring 2026 - Present)
- **Professional Service**
  - Review for conferences: NeurIPS, ICLM, ICLR, AAAI, AISTATS, ICASSP, TOPML, and SIGKDD
  - Review for journals: IEEE TSP and IEEE BITS