Julian Asilis

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U.S. citizen

Education

Aug 2022 – May 2027 (Expected) **Ph.D. in Computer Science**, *University of Southern California*, Los Angeles
Supported by NSF Graduate Research Fellowship, 2024–present
Research: Statistical learning theory; deep learning theory; deep generative models.
Advisor: Vatsal Sharan

2016 – 2020 **A.B. in Mathematics with High Honors**, *Harvard University*, Cambridge, MA
Senior Thesis: Probability Monads, under Michael Hopkins.

Research

Theory papers typically use alphabetical author ordering.

12. **Semi-Random Graphs, Robust Asymmetry, and Reconstruction**
Julian Asilis, Xi Chen, Dutch Hansen, Shang-Hua Teng.
In submission, 2025.

11. **Resa: Transparent Reasoning Models via SAEs**
Shangshang Wang, Julian Asilis, Ömer Faruk Akgül, Enes Burak Bilgin, Ollie Liu, Deqing Fu, Willie Neiswanger.
In submission, 2025.

10. **Textual Steering Vectors Can Improve Visual Understanding in Multimodal Large Language Models**
Woody Gan, Deqing Fu, Julian Asilis, Ollie Liu, Dani Yogatama, Vatsal Sharan, Robin Jia, Willie Neiswanger
In submission, 2025.

9. **Tina: Tiny Reasoning Models via LoRA**
Shangshang Wang, Julian Asilis, Ömer Faruk Akgül, Enes Burak Bilgin, Ollie Liu, Willie Neiswanger.
In submission, 2025.

8. **On Agnostic PAC Learning in the Small Error Regime**
Julian Asilis, Mikael Møller Høgsgaard, Grigoris Velegkas.
In *Neural Information Processing Systems (NeurIPS)*, 2025. **Spotlight paper**

7. **Local Regularizers Are Not Transductive Learners**
Sky Jafar, Julian Asilis, Shaddin Dughmi.
In *Conference on Learning Theory (COLT)*, 2025.

6. **Understanding Aggregations of Proper Learners in Multiclass Classification**
Julian Asilis, Mikael Møller Høgsgaard, Grigoris Velegkas.
In *Conference on Algorithmic Learning Theory (ALT)*, 2025.

5. **Proper Learnability and the Role of Unlabeled Data**
Julian Asilis, Siddartha Devic, Shaddin Dughmi, Vatsal Sharan, and Shang-Hua Teng.
In *Conference on Algorithmic Learning Theory (ALT)*, 2025.

4. **Transductive Sample Complexities Are Compact**
Julian Asilis, Siddartha Devic, Shaddin Dughmi, Vatsal Sharan, and Shang-Hua Teng.
In *Neural Information Processing Systems (NeurIPS)*, 2024.

3. **Open Problem: Can Local Regularization Learn All Multiclass Problems?**
Julian Asilis, Siddartha Devic, Shaddin Dughmi, Vatsal Sharan, and Shang-Hua Teng.
In *Conference on Learning Theory (COLT)*, 2024. (Open problems track)

2. **Regularization and Optimal Multiclass Learning**
Julian Asilis, Siddartha Devic, Shaddin Dughmi, Vatsal Sharan, and Shang-Hua Teng.
In *Conference on Learning Theory (COLT)*, 2024.

1. **Computable PAC Learning of Continuous Features**
Nathanael Ackerman, Julian Asilis, Jieqi Di, Cameron Freer, and Jean-Baptiste Tristan.
In *Logic in Computer Science (LICS)*, 2022.

Experience

Summer 2025 **Machine Learning Engineer Intern**, *Pinterest*, Seattle, WA
- Accelerated training of large-scale ads ranking models by 32% while improving AUC.
- Implemented data subsampling/reweighting methods, including local case-control (LCC) and reweighted SGD, to improve efficiency and reduce training costs.
- Performed extensive offline evaluations and ablation studies, providing insights on batch size, learning rate, and other hyperparameters that guided model optimization.

June 2021 – June 2022 **Research Associate**, *Boston College*, Chestnut Hill, MA
- Researched computable learning theory, contributing to the publication and presentation of an extended abstract at CCA and a paper at LICS.
- Investigated topological measures of complexity for neural nets, including implementing an efficient algorithm for computing polyhedral decompositions of shallow nets.
- Served as TA and Head TA for 2 computer science courses, including writing 140 pages of notes, overseeing 7 TA's, and writing scripts for automated exam grading.

July 2020 – May 2021 **Quantitative Researcher**, *AQR Capital Management*, Greenwich, CT
- Refined and expanded several factors used to trade dozens of assets in fixed income.
- Performed statistical inference and time series modeling on large panel data.
- Delivered multiple 60-minute research presentations to senior quants and partners.
- Wrote production code in Python and SQL.

Summer 2019 **Research Summer Analyst**, *AQR Capital Management*, Greenwich, CT
- Completed 10-week research project studying macroeconomic signals for the fixed income group, including extensive signal testing in Python.

Community

Summer 2023 **SHINE Mentor**, *USC Summer High School Intensive in Next Generation Engineering (SHINE)*, Los Angeles, CA

2019 – 2020 **Math Mentor**, *Harvard Gender Inclusivity in Mathematics (GIIM)*, Cambridge, MA

2018 – 2019 **Teaching Assistant**, *Cambridge Math Circle*, Cambridge, MA

Skills

Programming: Python
Languages: English, Spanish