

Pramith Devulapalli

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EDUCATION

Purdue University

PH.D. IN COMPUTER SCIENCE, Advisor: Steve Hanneke

West Lafayette, IN

August, 2019 – Present

Case Western Reserve University

BACHELOR'S OF SCIENCE IN ENGINEERING PHYSICS

Cleveland, OH

August, 2015 – May, 2019

RESEARCH INTERESTS

- Machine Learning Theory, Online Learning, Learning from Continuous Processes, Contextual Bandits

PUBLICATIONS

All publications are listed in alphabetical order unless otherwise noted. A * indicates equal contribution.

- Tanmay, Devale, **Devulapalli, Pramith** and Steve Hanneke. Uniform Convergence Beyond Glivenko-Cantelli. *Accepted at The 37th International Conference on Algorithmic Learning Theory (ALT, 2026)*
- **Devulapalli, Pramith***, Changlong Wu*, Ananth Grama, and Wojciech Szpankowski. Agnostic Continuous-Time Online Learning. *The 39th Annual Conference on Neural Information Processing Systems. (NeurIPS, 2025)*
- **Devulapalli, Pramith** and Steve Hanneke. Learning from Snapshots of Discrete and Continuous Data Streams. *The 38th Annual Conference on Neural Information Processing Systems. (NeurIPS, 2024)*
- **Devulapalli, Pramith** and Steve Hanneke. The Dimension of Self-Directed Learning. *International Conference on Algorithmic Learning Theory, PMLR (ALT, 2024)*
- **Pramith Devulapalli**, Bistra Dilkina, and Yexiang Xue. Embedding Conjugate Gradient in Learning Random Walks for Landscape Connectivity Modeling in Conservation. *Proceedings of the 29th International Joint Conference on Artificial Intelligence (IJCAI, 2020)*
- Gershon A., **Devulapalli P.**, Zonjy B., Ghosh K., Tatsuoka C., Sahoo S.S. Computing Functional Brain Connectivity in Neurological Disorders: Efficient Processing and Retrieval of Electrophysiological Signal Data. *American Medical Informatics Association, Joint Summits (AMIA, 2019)*
- Bai, J., **Devulapalli, P.**, Brockman, T., and La Rosa, A.H. Instrumentation-level Improvements in Shear-Force Near-Field Acoustic Microscopy. *In Journal of Physics: Conference Series (Vol. 1143, No.1). IOP Publishing (JPCS, 2018)*

INVITED TALKS & PRESENTATIONS

- (2024) Learning from Snapshots of Discrete and Continuous Data Streams, presented at **NeurIPS'24**, Vancouver, Canada
- (2024) The Dimension of Self-Directed Learning, presented at **ALT'24**, San Diego, CA
- (2023) Online Learning Topics: Littlestone Dimension, Binary and Multiclass Learning, and Uniform Convergence, two 60-minute presentations at **Purdue Theoretical Computer Science Seminar**, W. Lafayette, IN
- (2020) Embedding Conjugate Gradient in Learning Random Walks for Landscape Connectivity Modeling in Conservation, presented at **IJCAI'20**, Virtual Presentation

RESEARCH EXPERIENCE

Purdue University - Machine Learning Theory Research

Graduate Research Assistant, Advisor: Professor Steve Hanneke

West Lafayette, IN

January, 2022 - Current

◦ **Online Learning on Continuous-Time Processes**

- * Constructed a theory of learning an arbitrary class of functions from continuous data streams under a learning-theoretic perspective (NeurIPS'24).
- * Extended the previous work to provide the first quantitative characterization of regret bounds in the agnostic continuous-time online learning setting (NeurIPS'25).

◦ **Self-directed Learning from Discrete Data Streams**

- * Developed a complexity measure that captures the self-directed mistake-bound (ALT'24).
- * Characterized the growth of self-directed mistake-bounds as a function of input set size (paper to appear).

Sandia National Labs/Purdue University

Graduate Research Assistant, P.I.: Prof. Ananth Grama and Dr. William Hart

West Lafayette, IN

June 2025 - Current

◦ **Constrained Hidden Markov Model (HMM) Learning and Inference and Inference Benchmarking**

- * Model and analyze constrained learning and inference for HMMs, using auxiliary variables (state augmentation) to encode domain constraints while keeping computation tractable.
- * Built a Python/pgmpy testbed that generates randomized discrete Bayesian-network instances with tunable difficulty to evaluate runtime scaling across multiple inference methods.

Purdue University - Computational Sustainability Research

Graduate Research Assistant, P.I.: Professor Yexiang Xue

West Lafayette, IN

August, 2019 - December, 2021

◦ **Constrained Optimization Problems in Landscape Connectivity Modeling**

- * Researched on techniques to encode constrained optimization problems as differentiable layers within a deep learning architecture.
- * Applied this ideology to efficiently learn random-walks from data by using the Circuitscape model from ecology to learn wild-life animal movement patterns (IJCAI'20).
- * These computational frameworks are coded in Python using the PyTorch framework with customized backpropagation modules. Experiments were run on Azure Data Science virtual machines and the Purdue High Performance Computing cluster.

Biomedical Informatics Group, Case Western Reserve University

Undergraduate Research Assistant. P.I.: Professor Satya Sahoo

Cleveland, OH

January, 2017 - August, 2019

◦ **Neuro-Integrative Connectivity (NIC) Index**

- * Contributed to the development of a workflow that receives electroencephalogram (EEG) recordings from intracranial electrodes and computes functional connectivity measures to understand the seizure network (AMIA'19).
- * Created the NIC Index to efficiently query data within a single Cloudwave Sound Format (CSF) file, a form of storing EEG recordings. NIC Index outperforms the original workflow on average by three orders of magnitude.

◦ **Scalable NIC Workflow**

- * Improved upon the NIC Index to handle multiple CSF files corresponding to a single patient.
- * Created a scalable CSF structure and implemented a red-and-black tree to efficiently order CSF files. The NIC workflow supports fast and efficient queries on a single patient's signal data.

Nanophysics Lab, Portland State University

Research Assistant. P.I.: Professor Andres La Rosa

Portland, OR

September, 2013 - August, 2015

◦ **Understanding Properties of Mesoscopic Liquids**

Developed a software implementation of a Lock-In Amplifier and a scanning probe microscope controller for a Shear Force Acoustic Microscope, which is used to image at the atomic resolution the frictional properties of liquid confined between two solid surfaces (JPCS'18).

TEACHING EXPERIENCE

Statistical Machine Learning, CS 578

Graduate Teaching Assistant, Purdue University

West Lafayette, IN

Fall 2021

- Designed material for homework assignments and constructed programming assignments to test knowledge on various machine learning models such as logistic regression, SVMs, decision trees, etc.

SELECTED HONORS & AWARDS

NeurIPS 2025 Top Reviewer Award

2025

Purdue Doctoral Fellowship (4-Year Full Support)

2019

Edwin E. Moore Family Agricultural Innovation Prize, UIUC (\$5000)

2017

2nd Place in Florida State Engipreneurship Research Competition

2016

A.W. Smith Full-Tuition Scholarship (4-Year Tuition Support)

2015

REFERENCES

- **Steve Hanneke (Ph.D. Advisor)** (steve.hanneke@gmail.com)
Assistant Professor, Department of Computer Science, Purdue University
- **Ananth Grama** (ayg@cs.purdue.edu)
Distinguished Professor, Department of Computer Science, Purdue University
- **Wojciech Szpankowski**(szpan@purdue.edu)
Distinguished Professor, Department of Computer Science, Purdue University