Yash Patel

https://yashpatel5400.github.io/, yppatel@umich.edu

EDUCATION	**University of Michigan**, Ann Arbor, MI	

Ph.D. Statistics **Sep 2021 - Jun 2026 (Expected)**

▷ Cum. GPA: 4.000/4.000

▷ Selected Courses: Applied Probability and Stochastic Modeling, Computation and Optimization Methods, Monte Carlo Methods, Systems for Generative AI, LLMs and Transformers, Causal Inference, Uncertainty Quantification in Modeling, Regression Analysis, Stat. Mechanics

Princeton University, Princeton, NJ

Bachelor of Arts **Sep 2014 - Jun 2018**

▷ Major: Mathematics   MAT/COS/ORF GPA: 3.680/4.000, Cum. GPA: 3.642/4.000

▷ Certificates: Applications of Computing, Statistics and Machine Learning

▷ Selected Courses: Topology, Real Analysis, Complex Analysis, Theoretical ML (Graduate), Fairness in ML (Graduate), Machine Learning/Pattern Recognition (Graduate), Neural Networks, Analysis of Big Data, Computer Vision, Computer Graphics, Stochastic Systems

WORK EXPERIENCE **Meta**, Menlo Park, CA *(Senior Software Engineer, **IC5**)* **Jul 2018 - Sep 2021**

Augmented Reality Projects (2019-2021)

▷ Designed and implemented real-time (72 FPS) novel dynamic object reconstruction algorithm for 300k+ vertex meshes in Unity HLSL/C#.

▷ Implemented real-time (72 FPS) point cloud, dense mesh, and TSDFs (KinectFusion) scene reconstruction & rendering on HMDs & lenticular displays with C++/OpenGL/GLES/OpenCL

▷ Implemented deep learning model in PyTorch and optimized via SNPE & QAT to run at 30 FPS on Qualcomm SoC for Portal platforms. Added translation support for quantized nodes in JIT-compiled PyTorch to Caffe2.

Manifold (2018-19) https://yashpatel5400.github.io/files/manifold.pdf

▷ Added distributed rendering through Docker, RabbitMQ, and Kubernetes. Improved depth estimation efficiency by 30% with novel "Gaussian funnel."

Amazon, Seattle, WA *(SWE Intern)* **Jun 2017 - Aug 2017**

▷ Developed debugging service in Java (Spring MVC) for Kiva Picking Optimization team. Deployed globally to Amazon Robotics-enabled fulfillment centers with AWS (EC2, S3, SNS/SQS).

CONFERENCE PUBLICATIONS "Conformal Contextual Robust Optimization," **Patel Y**, Rayan S, Tewari A. *International Conference on Artificial Intelligence and Statistics, 2024* **Oral Presentation**

"Amortized Variational Inference with Coverage Guarantees," **Patel Y**, McNamara D, Loper J, Regier J, Tewari A. *International Conference on Machine Learning, 2024*

IN SUBMISSION "Conformal Prediction for Robust Control," **Patel Y**, Rayan S, Tewari A. *arXiv:2405.16250*

"Conformalized Late Fusion Multi-View Learning," EO Rivera*, **Patel Y*** (* denotes equal contribution), Tewari A. *arXiv:2405.16246*.

PATENTS "Holographic Calling for Artificial Reality," AP Pozo, J Virskus, G Venkatesh, K Li, SC Chen, A Kumar, R Ranjan, BK Cabral, SA Johnson, W Ye, MA Snower, **Y Patel**. *US Patent App. 17/360,693*

WORKSHOP PROCEEDINGS "Non-Parameteric Conformal Distributionally Robust Optimization," **Patel Y**, Cao G, Tewari A. *ICML 2024 Workshop on Structured Probabilistic Inference & Generative Modeling*

"Diffusion Models for Probabilistic Deconvolution of Galaxy Images," Li Y, Xue Z, **Patel Y**, Regier J. *ICML Machine Learning for Astrophysics Workshop, 2023*

"RL Boltzmann Generators for Conformer Generation in Data-Sparse Environments," **Patel Y**, Tewari A. *NeurIPS Machine Learning in Structural Biology (MLSB) Workshop, 2022.*

"Scalable Bayesian Inference for Finding Strong Gravitational Lenses," **Patel Y**, Regier J. *NeurIPS Machine Learning and the Physical Sciences Workshop, 2022.*

AWARDS 2x NSF GRFP Honorable Mention (2020, 2022)
Outstanding First-Year Ph.D. Student Award (2022)
Outstanding Graduate Student Instructor Team Award (2022)