Jay Sakarvadia

jaysak.com • 919-924-3760 • jsak@unc.edu

EDUCATION

University of North Carolina at Chapel Hill (UNC), Chapel Hill, NC — Expected May 2026
B.S. Economics, B.A. Computer Science, Minor in Statistics & Operations Research

London School of Economics & Political Science (LSE), London, UK — Summer 2024
Summer Coursework in Machine Learning & Advanced Econometrics

University of North Carolina at Charlotte, Charlotte, NC — 2021 - 2023
B.S. Computer Science, B.S. Economics, Minor in Data Science
(Transferred to UNC Chapel Hill in 2023.)

HONORS AND AWARDS

UNC Chapel Hill Economics Wesslen Research Grant — Research Award, $4000	2025
UNC Chapel Hill Economics Adventure Grant — Travel Award, $462	2024
UNC Charlotte Academic Research Scholar — Research Award, $2000	2023
UNC Charlotte Summer Research Scholar — Research Award, $6000	2022
UNC Charlotte Business Honors Program	2021

RESEARCH EXPERIENCE

Summer Research Fellow — May 2025 - Sep 2025
University of North Carolina at Chapel Hill, Economics Department
Advisors: Dr. Andrii Babii

Project: Causal Machine Learning for Heterogeneous Treatment Effect Estimation in the 2008 Oregon Health Insurance Experiment
We expand on prior work estimating the local average treatment effect (LATE) of Medicaid on clinical health outcomes by introducing the conditional LATE, which allows us to estimate heterogeneous treatment effects (HTEs) among compilers and understand causal effects within their subgroups. Recognizing that policymakers can only offer Medicaid rather than mandate enrollment, thereby creating the possibility of non-compliers, we also estimate the conditional average treatment effect (CATE), which measures the causal effect of offering Medicaid on clinical outcomes for the entire eligible population and its subgroups. Finally, we apply flexible causal machine learning methods to estimate HTEs under the CATE framework and build a policy targeting algorithm designed to maximize the positive impact of Medicaid expansion on clinical outcomes across diverse subpopulations.

Advanced Undergraduate — Aug 2023 - Apr 2025
University of North Carolina at Chapel Hill, Economics Department
Advisors: Dr. Andrii Babii

Project: Independent Study on Causal Machine Learning
Task: Performed a comprehensive review of the causal machine learning literature, guided by the *CausalML Book* (Chernozhukov et al., 2024).
Deliverable: Culminated in a set of original teaching slides on causal machine learning, designed to support dedicated seminars or complement advanced courses like UNC's ECON 573: Machine Learning and Econometrics.
Topics covered: causal Inference in RCTs and observational studies, meta-learners, double-machine learning, and more.

Research Aide Aug 2023 - Apr 2025
Argonne National Laboratory, Mathematics & Computer Science Division
Advisors: Dr. Kevin Antoney Brown

Project: Performance Benefit Analysis Given I/O Optimizations for Analogous AI Workloads
Understanding and labeling similarities between machine learning (ML) models, their architecture, and the larger workflow they fit into to categorize them into groups that can be associated with specific I/O optimizations that would be the most efficient for a given type of ML model/workflow. Investigating I/O optimization strategies to gauge effectiveness amongst these different groups of models.

Summer Research Intern May 2023 - Aug 2023
Argonne National Laboratory, Mathematics & Computer Science Division
Department of Energy, Science Undergraduate Laboratory Internships (SULI)
Advisors: Dr. Kevin Antoney Brown

Project: Profiling I/O Behavior of a Particle-Physics Distributed Deep Learning Workload on Supercomputers
Studied I/O behaviors of large-scale AI workloads on supercomputers by configuring and deploying "CosmicTagger", a large-scale high-energy physics convolutional neural network, on the Polaris supercomputer at the Argonne Leadership Computing Facility, while pairing it with Darshan, a low-level I/O profiler and tracer for extensive I/O data collection and analysis, and NVIDIA Nsight, a tracer used to capture GPU level operation data. By consolidating both data streams under a singular time format, we were able to correlate low-level I/O operations to higher-level GPU operations that occurred during model training.

Academic Year Research Scholar Jan 2023 - May 2023
Battery Integration Lab: Design and Experimentation (BILDE)
University of North Carolina at Charlotte, Mechanical Engineering & Engineering Sciences Department
Advisor: Dr. Anthony Bombik

Project: Machine Learning on Battery Cycling Data for Health Estimation
Converted large amounts of state-of-charge (SOC) lithium-ion battery data to state-of-health (SOH) using derived SOH equation. Pre-processed and normalized new SOH dataset and built multiple machine learning models to predict SOH degradation over time. Models included: linear regression, multivariate regression, and most notably neural networks.

Summer Research Scholar May 2022 - Aug 2022
GoPeaks Lab
Advisors: Dr. Victor Zitian Chen, Dr. Reginald Silver

Project: Synthesizing Knowledge from Science for Performance Management Decisions
Assisted in variable extraction from literature to aid in dataset construction for machine learning software designed to support decision-making in healthcare and business settings. Completed a case study on 6 causal artificial intelligence (AI) startups globally to understand how to bring causal AI technology from research to the market; identified 4 common startup models that could guide the market entry of causal AI products.

RESEARCH OUTPUT

Celebration of Undergraduate Research, UNC Chapel Hill, May 2026. Sakarvadia, J. "Causal Machine Learning for Heterogeneous Treatment Effect Estimation in the 2008 Oregon Health Insurance Experiment" (In progress: abstract, poster, & paper).

Learning on the Lawn Event, In-Person, Argonne National Laboratory, August 2023. Sakarvadia, J; Brown, K. "Profiling I/O Behavior of a Particle-Physics Distributed Deep Learning Workload on the Polaris Supercomputer" (abstract, poster, & paper).

University of North Carolina at Charlotte Undergraduate Research Conference, 2023. Sakarvadia, J; Bombik, A. "Machine Learning on Battery Cycling Data for Health Estimation" (abstract & poster).

University of North Carolina at Charlotte Summer Research Symposium, 2022. Sakarvadia, J; et al. "Synthesizing Knowledge From Science for Performance Management Decisions" (abstract & poster).

PROFESSIONAL EXPERIENCE

Analytics and Data Intern May 2025 - Aug 2025
Chief Administrative Office Data & Analytics Team, Wells Fargo, Charlotte, NC
Utilized Jira to manage ticket intake and workflows for the Enterprise Change Management and Supply Chain Management teams. Leveraged SQL to consolidate multi-source enterprise data into time-series format, enabling more efficient reporting and analysis. Designed and developed Power BI and Tableau dashboards accessed by 8,000+ end users, streamlining data-driven decision-making. Presented key findings and performance insights to 100+ stakeholders, demonstrating the impact of analytics on enterprise operations.

Front Desk Assistant Aug 2021 - Dec 2022
Housing & Residence Life (HRL), University of North Carolina at Charlotte
Seamlessly worked with the HRL team to streamline the checkout process for student loan keys in the honors dormitory. Showcased meticulous attention to detail in handling paperwork and keeping a structured filing system. Effectively communicated potential loan key charges to students through

multiple channels, ensuring clarity. Played a pivotal role in upholding residential community security with diligent daily key audits.

TECHNICAL SKILLS

Computational Skills
Causal Inference, Statistical Analysis, Machine Learning, Deep Learning
Profiling, tracing, and benchmarking processes on high-performance computers
Python, C, Java, SQL, Bash/Shell scripting, Linux/UNIX Environment