# Rohan Ray

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## Experience

**MEDSCRIBES** Raleigh, NC

**Chief Medical Scribe – UNC REX Hospital Emergency Department** Feb 2023 – Nov 2024

- Documented medical records for 3,000+ ER patients, gaining extensive familiarity with structured clinical data and Epic EMR systems
- Interpreted and flagged critical lab anomalies for ER physicians, contributing to real-time clinical decision-making for patients with varying acuity
- Trained batch of 10+ new scribes in medical terminology, EMR workflows, and chart documentation protocols; organized sessions on Epic proficiency
- Produced e-learning modules to onboard scribes in documentation standards using Moodle LMS

**UNC DEPARTMENT OF NEUROSCIENCE** Chapel Hill, NC

**Undergraduate Research Assistant – Honors Thesis Student – Christoffel Lab** Aug 2023 – May 2024

- Authored senior thesis on the development of an automated behavioral classifier (ABC) for aggression in ASD (autism spectrum disorder) mouse models using DeepLabCut-based locomotion metrics
- Defended thesis to a neuroscience faculty panel, showcasing classifier performance and validation techniques on previously untested videos. ABC was 15% more accurate at identifying periods of aggressive behavior than a human annotator.
- Performed statistical analysis, including hierarchical clustering and PCA on c-Fos expression data to identify region-specific neural activation patterns across mouse groups
- Interpreted neural clustering results in the context of brain region functionality and behavioral phenotypes, contributing to ASD correlation with c-Fos protein aggregation

**UNC SCHOOL OF MEDICINE – ZYLKA LAB** Chapel Hill, NC

**Undergraduate Research Assistant – Computational Biology (Neuroscience)** Feb 2021 – Apr 2023

- Developed computer vision pipeline to quantify pain-associated mouse behaviors in post-surgical trials using deep learning models on video datasets
- Engineered a GUI-based Raspberry Pi system to standardize high-throughput behavioral video capture, supporting scalable neuroscience experiments
- Managed large volumes of behavioral video data and optimized pre-processing scripts for parallelized computation in a UNIX-based environment
- Designed ML models in PyTorch to quantify locomotion patterns and docility measures in mouse trials
- Used model output to support analysis of aggression-linked behavioral phenotypes
- Leveraged DeepLabCut and DeepEthogram to automate annotation of facial and anatomical features, facilitating scalable classification of locomotion behaviors
- Released open-source Python package 'PainFace' on PyPI to support automated pain behavior analysis in preclinical mouse models -- https://pypi.org/project/painface
- Collaborated with cross-functional teams including neuroscientists and machine learning scientists to design experimental setups and validate model outputs

**LENOVO** Morrisville, NC

**Software Engineering (Machine Learning) Intern** June 2021 – Aug 2021

- Developed Python-based API analytics tool to extract crash data patterns (BSOD) across 500,000+ endpoints using NumPy and pandas
- Designed CLI tool to map system failures to root driver causes via failure bucket ID parsing, reducing diagnostic time for IT admins by 40%
- Built TensorFlow model to identify predictive factors of system crashes using multi-variable input logs across enterprise-scale datasets
- Documented ML pipeline for internal use by IT teams, facilitating knowledge transfer and reproducibility across teams, undergoing collaborative code review sessions

## Leadership & Service Experience

**FIRST ON SCENE APP** Chapel Hill, NC
**Chief Technical Officer** Sept 2022 – Nov 2023

- Developed an iOS emergency response app in React Native to assist first responders and bystanders in Raleigh-Durham area college campuses in locating AEDs and delivering step-by-step medical guidance
- Integrated real-time geolocation services and created an intuitive user interface design for rapid access to critical intervention tools
- Presented at UNC Gillings School of Public Health Pitch Competition, earning 3rd place.

**ASHA (Accredited Social Health Activist)** Kolkata, India
**Volunteer Health Assistant** May 2021 – June 2021

- Assisted in public health efforts by providing access to essential medications (e.g., insulin, antihypertensives) to rural farming communities
- Supported ASHA workers in delivering antenatal care education and administered Td vaccines to preteens

**UNC PHI DELTA EPSILON** Chapel Hill, NC
**Finance Committee** May 2022 – May 2023

- Organized events like the Anatomy Fashion Show to raise over $10,000 and awareness for Children's Miracle Network at Duke Children's hospital.

## Skills & Interests

**Programming Languages:** Python, R, C, C++, Java, SQL, JavaScript
**Tools & Frameworks:** TensorFlow, DeepLabCut, DeepEthogram, AWS/Cloud, React Native, Tkinter, UNIX/Linux, shell scripting, Git, Jupyter, Raspberry Pi hardware, Nextflow, Docker
**Biological data analysis**: Illumina next-generation sequencing (NGS) analysis, gene expression profiling, somatic variant interpretation, copy number variation (CNV), PCA, clustering, behavioral classification, and scientific manuscript preparation
**Healthcare**: Epic EMR, medical terminology, BLS Certified (AHA), EMT certification in progress. Experienced with clinical data structure, decision-making workflows, and patient encounter documentation.
**Laboratory:** Certified in animal handling (mice). Molecular biology: gel electrophoresis, immunohistochemistry. Chemistry: titration, organic synthesis, NMR spectroscopy.
**Interests**: Translational cancer genomics, emergency medicine AI, digital health innovation

## Education

**JOHNS HOPKINS UNIVERSITY** Baltimore, MD
*Master of Science in Bioinformatics* (Expected August 2025)
*Current GPA: 3.94*
Relevant Courses: Genomic & Personalized Medicine, Epigenetics, Gene Organization & Expression, Clinical Trial Design and Conduct, Algorithms for Bioinformatics, Advanced Practical Bioinformatics & Computer Concepts, Principles and Methods in Machine Learning

**UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL** Chapel Hill, NC
*Bachelor of Science in Neuroscience* (Honors), *Bachelor of Science in Computer Science* 2020-2024
Minor: Chemistry | GPA: Neuroscience – 3.9, CS – 3.79
Awards: Dean's List – Fall/Spring 2024; Fall/Spring 2023; Fall 2022 -- Graduated with Honors in Neuroscience
Activities and Involvement: Phi Delta Epsilon, UNC Sangam, Student Health Action Coalition (SHAC), Carolina Adapts Toys for Children (CATCH), Honors Thesis, Undergraduate Research Ambassador
Relevant Coursework/Experience: COMP 210: Data Structures, COMP 550: Algorithms and Analysis, COMP 283: Discrete Structures, CHEM 261/262: Organic Chemistry, COMP 421: Files and Databases, COMP 523: Software Engineering Lab, BIOL 205: Cell and Developmental Biology, NSCI 693H/694H: Honors in Neuroscience