

# VARUN GANDE

@ vg262@cornell.edu

(972) 730-7430

Dallas, TX

linkedin.com/in/varun-gande

## RESEARCH EXPERIENCE

**Undergraduate Researcher** | Principal Investigator: Amnon Koren, Ph.D.

Jan 2022 - present

- Developing Python/MATLAB genomics tools for genome-wide studies in a Unix environment
- Evaluating the presence and expression of 900+ genes and small RNAs affected by novel quantitative trait loci (QTLs)
- Comparing novel *cis*-QTLs to other local QTL databases for expression and replication timing

**Education Team** | Cornell Data Science Project Team

May 2022 - present (Subteam Lead) • Aug 2021 - Apr 2022 (Member)

- Handling recruitment, leading weekly meetings, and monitoring member progress on projects
- Running and advertising the team's Introduction to Machine Learning class (INFO 1998), boosting class enrollment by 75% during my tenure

**Researcher** | Southern Methodist University REU (NSF #1840260)

Jun 2021 - Jul 2021

- Optimized a cell assembly algorithm (Russo et al. 2017) to detect coordinated neurons more accurately from spike train sequences, resulting in a 20% reduction of spurious correlations
- Devised a protocol to measure dissipation of modal energies in the Fermi-Pasta-Ulam model

## PROJECTS

**MathSearch** | Skills: AWS, Git, Project Management

- Devising an interface using computer vision methods to search compiled LaTeX within a PDF
- Translating inputs between the front end and the machine learning model
- Developing a queueing layer to prevent request concurrency

**Cricket Score Predictor** | Skills: Scikit-learn, NumPy, Pandas, Jupyter

- Analyzed 180k+ records and employed a linear regression and random forest regression model using Scikit-learn to predict T20 cricket innings scores at a particular state in the game
- Feature-engineered momentum and team skill features by pulling data from existing websites, increasing cross-validated accuracy by 11% and 5% in each model, respectively

**Cornell Data Science Tutorials Blog** ([Link](#)) | Skills: Markdown, Git, Ruby, HTML

- Co-created and currently supervising a Markdown-based tutorials blog with important data science topics and project team updates

## ADDITIONAL EXPERIENCE

**Undergraduate Course Staff** | Cornell University

Aug 2021 - present

- Courses: CS 1112—Introduction to MATLAB (Aug 2021 - Dec 2021), ORIE 3300—Optimization I (Aug 2022 - present), ENGRG 3400—Engineering Project Team Onboarding (Aug 2022 - present)

**Mathematics Tutor** | Cornell Math Support Center

Aug 2021 - present

- Providing personalized walk-in math help for Cornell students through collaborative instruction

**Alpha Tester** | eCornell Machine Learning Foundations

Mar 2022 - Jul 2022

- Reviewed the eCornell 8-week Machine Learning Foundations course
- Provided concise feedback on design and user experience before the course went live

## PRESENTATIONS

- Loss of hedgehog ligand induces reactive oxygen species in mouse lung adenocarcinoma.* UT Southwestern STARS Research Symposium. July 2019.
- Refining the Cell Assembly Detection (CAD) algorithm for neuronal cell assemblies.* 4th Annual Meeting of the SIAM TX-LA Section. November 2021.
- Thermalization in Quadratic/Cubic Nonlinearity for FPUT model.* University of Texas Rio Grande Valley Research Night. May 2022.

## EDUCATION

**Cornell University**

GPA: 4.15 / 4.3

Operations Research &  
Information Engineering

May 2024 | Ithaca, NY

Honors: Dean's List (Fall '20,  
Spring '21, Fall '21, Spring '22)

## KEY SKILLS

**Languages:** Python • SQL

MATLAB • Java

**Machine Learning:** kNN

Decision Trees • Random Forest

Logistic Regression

**Technologies:** Pandas • NumPy

Scikit-learn • Markdown

Matplotlib • PyTorch • LaTeX

**Tools:** Git • Unix • Jupyter

## COURSEWORK

Machine Learning

Linear Optimization

Practical Tools for OR, ML, DS

Probability & Stats (I & II)

OOP & Data Structures (Java)

Computer System Organization

Financial & Manag. Accounting

Discrete Mathematics

Linear Algebra

Differential Equations

Multivariable Calculus

## ACTIVITIES/INTERESTS

Assn. for CS Undergraduates

Undergraduate Math Club

Big Red Bowling

Table Tennis Club

Badminton Cornell

Cornell Cricket Club

## HOBBIES

Bowling • Tennis • Piano

Cricket • Table Tennis