# Nicholas Hanoian

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## Education

**University of Vermont** | Bachelor of Science in Data Science and Mathematics — Expected May 2021
GPA: 4.0 • Honors College — Burlington, VT

**Undergraduate Coursework**

- Machine Learning
- Data Structures and Algorithms
- Combinatorial Graph Theory
- Applied Multivariate Analysis (in progress)
- Experimental Design (in progress)
- Data Science I, II (in progress)
- Database Systems
- Data Privacy
- Probability Theory
- Survival and Logistic Regression

## Work Experience and Projects

**REU at the University of California, Los Angeles** | Deep Leraning Research — June 2019–Aug. 2019, Los Angeles, CA

- Worked on a team of nine undergraduate researchers, led by a professor, to develop a topic-aware chatbot.
- Studied current literature on attention-based models for text generation and non-negative matrix factorization for topic modeling.
- Designed a functional model that combines both methods in order to train a topic-aware chatbot.
- arXiv preprint: https://arxiv.org/abs/1912.00315

**Detecting Bannable Content on Reddit** | Machine Learning Final Project — Dec. 2019, Burlington, VT

- Designed a neural network-based model which predicts whether communities within Reddit are at risk of violating Reddit's content policy.
- Cleaned, organized, and trained models on 10 million Reddit comments, utilizing parallelization and multi-GPU computing clusters to obtain results in a reasonable time frame.
- Achieved over 85 percent recall on now-banned communities while maintaining a reasonable precision, which would result in an over 11-fold decrease in the number of communities which Reddit would need to manually moderate.

**Fairness in the New York State Lottery** | Data Science I Final Project — Dec. 2019, Burlington, VT

- Aggregated datasets from several sources including the State of New York databases, U.S. Census databases, and scraping other publicly-available websites.
- Analyzed past winning numbers from several games and found that all of them had past results consistent with what would be expected from truly random games.
- Built linear models to describe the counties in which winning tickets were sold. In addition to population, we found that race composition, poverty level, and education levels were all highly associated with lottery winnings.

**Teacher's Assistant** | Introductory and Intermediate Programming — Aug. 2018–Present, Burlington, VT

- Helped students understand basic concepts of programming as well as object-oriented design principles and apply them to projects.

## Technical Skills

**Languages**

- **Proficient**: Python, SQL, R
- **Some Experience**: C++, Java, SAS, PHP, JavaScript, HTML, CSS

**Libraries**

- **Data analysis and visualization**: NumPy, scikit-learn, Keras, pandas, Matplotlib, dplyr, ggplot2
- **Web Development**: Django, React JS, Bootstrap

**Tools** | Git, Make, UNIX, CMake, Emacs, LaTeX