# Nolan R. Bonnie

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## Education

**B.S. in Mathematics, with a Specialization in Data Science** (GPA: 3.49) **Expected June 2021**
University of California, Irvine

## Awards

UCI UROP Fellow (with monetary grant for Ozone Weekend Effect Research)
Deans Honor List
Campuswide Honors Collegium (requires honors thesis)
Selected by UC President Janet Napolitano as **1 of 8 undergraduate students from the UC system** to attend the Lindau Nobel Laureate Meeting (selection based off achievement in research & academics)
Distinguished Anteater award — **1 of 25 undergraduates selected from UCI**

## Leadership

UCI Engineering Student Council **Fall 2017 - Spring 2018**
Discussion Leader for *Introduction to Machine Learning* **Winter 2019**

## Coursework and Research

**Scientific Coursework**

- Engineering: Matlab, scientific computing and visualization, data analysis, machine learning.
- Physics: classical physics and kinematics.
- Chemistry: engineering chemistry.
- Math: honors calculus, statistics, logic, linear algebra, abstract algebra, number theory, graph theory, algorithms, real analysis, probability and stochastics, numerical methods, statistical learning, and Bayesian statistics.
- Computer Science: Python, artificial intelligence.
- Logic and Philosophy of Science: gender biases in scientific writing, honors naturalized epistemology.

**Quantification of Weekend Effect in Southern California** **Spring 2019 - Present**

- First author of a paper quantifying the ozone weekend effect in Southern California.
- Using hourly ozone data from the past 30 years provided by the Environmental Protection Agency.
- Quantification has never been done in California, producing surprising original results.
- Submitted for publication in Atmospheric Environment on 09/05/2020.

**Undergraduate Research Study in Data Science and Computing** **Winter 2018 - Present**

- Selected by Professor Donald Dabdub to participate in 4 quarters of individual research study.
- Studied various topics related to data science and computation, such as:
  - Scientific computing and scientific visualization
  - Programming in R, a well established statistical software
  - Data analysis, working with big data, machine learning, and neural networks.
- Applied graduate level statistical learning techniques to real world prediction problems, and used the basis of what I learned to start a business and conduct research in atmospheric chemistry.

**Undergraduate Research Study in Mathematics** **Winter 2018, Spring 2019 & 2020, Fall 2020**

- Selected by Professor Chris Davis to join math research courses focused on computational sciences.
- Studied advanced computational algorithms focusing on optimization, which benefits my work involving large datasets.
- Developed skills in graph theory by proving theorems in a graduate textbook on discrete mathematics.
- Wrote an academic paper connecting graph theory to data analytics.
- Selected by Professor Shuhao Cao to join a UCI kaggle team that uses advanced AI techniques to solve public challenges.
- Developed skills in neural network libraries Tensor-flow 2.1 and Keras.
- Closely analyzed *Elements of Statistical Learning* in a graduate reading group led by Professor Knut Solna (only undergrad student invited).

## Relevant Work Experience

**Sandia National Laboratories — Cybersecurity R&D Year-Round** **July 2020 - Present**

- Employed at Sandia for a year-round research position.
- Currently applying novel Planning AI systems a classified project aimed to strengthen our national security in the cyberspace domain.
- Expect multiple first author publications and patent from work.

**Learning and Academic Resource Center — Tutorial Leader** **September 2018 - June 2020**

- Lead three supplementary course sections, with classes up to 16 students every quarter.
- Supported a Matlab programming course for engineers.
- Implemented proven supplemental instruction methods to help students learn and retain information.
- **96.3% student satisfaction** from evaluations.

**Discussion Leader for EngrMAE 195 — *Introduction to Machine Learning*** **Winter 2019**

- Served as an unofficial TA for a new UCI class EngrMAE 195
- Created and delivered weekly lesson plans for the 16 student class
- Taught topics such as: Advanced R programming, model validation, and high dimensional data analysis

**Sandia National Laboratories — Cybersecurity R&D Intern** **June 2018 - September 2018**

- Managed a 7 person team working on a high-priority research project.
- Project was a groundbreaking proof of concept, and changed the way government servers are protected.
- Created testing data for a new cybersecurity project that used AI to prevent cyber attacks.

**Stock Market Startup — Chief Quantitative Analyst** **June 2019 - June 2020**

- Cofounded a financial predictions company, using AI to forecast the US Stock Market.
- Managed the acquisition and processing of model training data.
- Trained models with advanced statistical learning methods.
- Backtested the model to optimize accuracy and consistency.
- Implemented AI models on live stock data.

## Skills and Other Academic Interests

Formal languages: **R**, **Python**, **Matlab**, UNIX, HTML, CSS, Java, and Fortran 77.
Classical music: 13 years of piano, 6 years of guitar.
Philosophy relating to: ethics, metaphysics, epistemology, and happiness.