Nolan R. Bonnie

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Education

University of Colorado Boulder **August 2022 - Present**
Ph.D. student in Computer Science
Interdisciplinary Quantitative Biology Certificate Program

University of California, Irvine **September 2017 - June 2021**
B.S. in Mathematics
Specialization in Data science

Awards

R&D 100 Award Winner (Project ATHENA)	**2022**
NSF NRT Fellow	2022 - 2023
Distinguished Anteater Award	2020 - 2021
UCI UROP Fellow	2019 - 2020
Facebook-Udacity PyTorch Scholarship Recipient	2018 - 2019
UCI Campuswide Honors Collegium	2017 - 2021

Publications and Presentations

Bonnie, N. R., Hernández-Paniagua, I. Y., Dabdub, D. (2021). A Longitudinal Quantification of the Ozone Weekend Effect in the South Coast Air Basin of California [Manuscript in Preparation]. Computational Environmental Sciences Laboratory, University of California, Irvine.

Bonnie, N. R. (2020). Adversary Emulation with Planning AI. Poster presentation at the Sandia National Laboratories 2020 Student Intern Cyber/CS Symposium. July 2020, Online.

∗ **Bonnie, N. R.**, Ebding, K., Harrell, C., Kothapalli, A., Sabetan, S., Watson, G. (2018). Virtualized Integrated Network Monitoring System. Poster presentation at the Sandia National Laboratories 2018 Student Intern Cyber/CS Symposium. July 2018, Livermore CA, USA.

∗ Order is Alphabetical

Relevant Work Experience

Sandia National Laboratories – R&D S&E, Cybersecurity **July 2020 - August 2022**

- Full-time Member of the Technical Staff with DOE Q Clearance.
- Developed a novel generalized planning AI with applications to cyber-emulytics (used for ATHENA).
- Expect multiple tier 1 publications and patents from AI planning work.
- Engineered new big-data (6 PB) analysis methods for detailed network traffic data.
- Developed scalable anomaly detection tools.

Learning and Academic Resource Center – Programming Tutor **September 2018 - June 2020**

- Taught three supplementary course sections, with classes of 16 students every quarter.
- Supported a Matlab programming course for engineers.
- Developed lesson plans and practice tests.
- 96.3% student satisfaction from over 150 evaluations.

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 an innovative proof of concept, and changed the way government servers are protected.
- Created synthetic data for a cybersecurity project that used AI to detect cyber attacks.

Leadership

UCI Engineering Student Council **Fall 2017 - Spring 2018**
Discussion Leader for *Introduction to Machine Learning* **Winter 2019**
Instructor at Sandia Labs for *Introduction to R and Machine Learning* **Summer 2021**

Relevant Coursework

Graduate Coursework: Bioinformatics & Genomics, Deep Reinforcement Learning for Robotics

Undergraduate Coursework: Artificial Intelligence, Machine Learning, Scientific Computing and Visualization, Graph Theory, Atmospheric Chemistry, Differential Equations, Probability and Stochastics, Bayesian Statistics, Computational Optimization, Algorithms, Linear Algebra, Abstract Algebra, Real Analysis, Number Theory, Numerical Methods

Undergraduate Research

Undergraduate Research Study in Data Science and Computing **Winter 2018 - June 2021**

- 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, scientific visualization, programming in R, data analysis, 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 conduct research in atmospheric chemistry

Undergraduate Research Study in Mathematics **Winter 2018 - Fall 2020**

- Participated in research groups led by professors Chris Davis, Shuhao Cao, and Knut Solna
- Studied research topics related to: computational algorithms, optimization, graph theory, discrete mathematics, deep neural networks, and machine learning.

Skills and Other Interests

Formal languages: R, Python, Spark, Matlab, UNIX, HTML, CSS, Java, and Fortran 77.
Classical music: 14 years of piano, 7 years of guitar.
Volunteering: Colorado League certified high school mountain biking coach.