# Nick Lauersdorf

Computational Physicist
and Data Scientist


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## Social Network

ResearchGate Profile
Github Profile

## Languages

- Python
- MATLAB
- C++
- HTML
- CSS
- Javascript
- SQL

## Tools

- HOOMD-Blue
- Mathematica
- Model Development
- Tableau
- Scikit-learn
- Seaborn
- Pytorch
- Tensorflow
- OpenCV
- Django

## Interests

- Video Games
- Comic Collecting
- Film

## Objective

Computational Physicist seeking to apply 9-years of modeling and simulation, data science, and software development experience to a career in industry. Extensive experience developing physics-based models, writing algorithms to statistically analyze big data, and designing intuitive visualizations to share significant findings.

## Education

**PhD in Materials Science** | UNC-Chapel Hill 2019 – 2024
- Graduate business certificate in Innovation, Leadership, & Management
- Fully paid for 3-years of graduate career by winning the Department of Defense (DoD) National Defense Science & Engineering Graduate (NDSEG) Fellowship

**B.S. in Physics and Mathematics** | UW-Madison 2014 – 2018
- GPA: 3.60

## Experience

### Research & Programming

**Computational Physicist** | UNC-Chapel Hill 2020 – current
- Discovered meta-stable states of phase separation (clustering) for active Brownian particle mixtures via C++ molecular dynamics simulations
- Determined phase boundary between stable and meta-stable clusters by training logistic regression machine learning model
- Allowed differentiation of bulk and interface of cluster by writing local translational and orientational order-based clustering algorithm
- Enabled design of non-equilibrium steady-states by deriving predictive statistical mechanics theory

**Data Scientist** | BeAM Makerspaces 2019 – 2021
- Enabled cost-efficient scheduling and targeted marketing by developing Tableau workbooks for statistical analysis of makerspace user demographics
- Improved end-user experience of staff by leading beta testing of analytics software
- Increased monthly first-time users by 15% by designing marketing visualizations
- Led team that created and implemented a campus-wide inventory tracking system and database

**Experimental Physicist** | UNC-Chapel Hill 2019 – 2020
- Expanded lab's presence by forming and managing a collaboration network with numerous national labs
- Taught photodetectors to developing scientists by publishing textbook chapter

**Assistant Scientist** | Pharmaeutical Product Development 2018 – 2019
- Increased customer satisfaction by writing FDA-regulated reports

**Computational Physicist** | UW-Madison 2016 – 2018
- Enabled accurate prediction of fusion plasma properties by developing a Bayesian statistics model in Python
- Increased efficiency of model by 40% through converting iterations over lists to multi-dimensional tensor mathematics
- Enabled user-friendly design of x-ray detector optics by developing multi-variable optimization routines to maximize signal
- Increased measurement capabilities of scientists by designing x-ray detector that removes undesirable noise from measurements

### Teaching & Mentoring

**STEM Mentor** | Junior Science & Humanities Symposium 2022 – current
- Earned $8,000 for two mentees' college funds by placing second at nationals with data science research projects

**Teaching Assistant** | UNC-Chapel Hill 2020 – 2021
- Introduced others to programming by leading lectures on MATLAB and Python
- Designed molecular dynamics models by overseeing research projects

## Awards

**NDSEG Research Fellowship [$165,000]** | Department of Defense 2021 – 2024
**First Place Presentation** | Triangle Student Research Competition 2021
**Theodore Herfurth Scholarship [$40,000]** | UW-Madison 2014 – 2018