Nick Lauersdorf

Computational Physicist
and Data Scientist

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Social Network

ResearchGate Link

https://github.com/njlauersdorf

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 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 [Published in 2023]
- Determined phase boundary between stable and meta-stable clusters by training logistic regression machine learning model [Published in 2023]
- Allowed differentiation of bulk and interface of cluster by writing local translational and orientational order-based clustering algorithm
- Enabled design of active matter steady-states by deriving predictive statistical mechanics theory [Published in 2021]

Data Scientist | BeAM Makerspaces 2019 – 2021

- Enabled cost-efficient scheduling and targeted marketing by developing Tableau workbooks for statistical analysis of user demographics and makerspace usage
- Improved end-user experience of staff by leading beta testing of BeAM user analytics software
- Increased BeAM monthly first-time users by 15% by designing marketing visualizations for UNC's websites and within every UNC makerspace
- Led team that created and implemented a campus-wide BeAM inventory tracking system and Salesforce database

Experimental Physicist | UNC-Chapel Hill 2019 – 2020

- Expanded lab's presence by forming and managing a collaboration network with numerous national labs

Assistant Scientist | Pharmaeutical Product Development 2018 – 2019

- Increased customer satisfaction by writing reports following GMP and FDA requirements

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 [Published in 2018]

Teaching & Mentoring

STEM Mentor | Junior Science & Humanities Symposium 2022 – current

- Won $20,000 for two mentees' college funds by placing second overall at nationals with computer vision, machine learning, and 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 [$180,000] | Department of Defense 2021 – 2024
First Place Presentation | Triangle Student Research Competition 2021
Theodore Herfurth Scholarship [$40,000] | UW-Madison 2014 – 2018