

Noah Horne

High Achieving Undergraduate Student in Physics & Data Science

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🐙 <https://github.com/nhorne7>



Education

Constructor University

Bachelor of Science in Physics & Data Science

Graduating May, 2026

Bremen, Germany

- **Current GPA: 1.21** (German Equivalent)
- Recipient of maximum merit based scholarship $\approx$ 24,000€

Work Experience

Nanophotonics Research Assistantship

UiT The Arctic University of Norway

June 2025 – August 2025

In-Person

Matrix Algebra and Advanced Calculus I & II Teaching Assistant

Constructor University

Sep 2024 – June 2025

In-Person

Private Secondary School Mathematics & Physics Tutor

Private Hybrid Tutor

Jan 2022 – June 2025

Online & In-Person

Research Experience & Technical Projects

Simulating Variable Heat Dispersion in a Metal Plate via. Finite Difference Method | Feb. 2024

- Numerically approximated and visualized solutions to the 2-dimensional heat equation through finite differencing in Python (Numpy, Scipy, Matplotlib and Numba). This research provided insights into thermal management in engineering applications.

Optical Anisotropic Phyllosilicate Crystal Investigation | Aug. - Sept. 2024

- Collaboratively conducted a quantitative investigation into the birefringency of phyllosilicate plates subject to a neodymium-doped laser. This research provided insights into the applications of quarterwave and halfwave plate technology in advanced optics.

p-Ge Semiconductor and Cu Conductor Hall Effect Investigation | Aug. - Sept. 2024

- Independently designed and wired a setup capable of measuring the temperature dependent Hall Voltage across Copper samples and p-doped Germanium semiconductors. This experiment exercised valuable skills in circuitry, critical thinking and experimental design.

Helmholtz Coil operation and Scanning Electron Microscopy | Sept. 2024

- Used a Helmholtz coil coupled vacuum chamber to quantitatively examine electromagnetic charge dynamics, and gained experience in the operation of an SEM. This investigation provided SEM technical skills and insights into modern optical technology.

Languages and Technical Proficiencies

Languages: English (Native), Spanish (B2), German (B1), French (A2), Mandarin (A1)

Programming Languages: Python, Jupyter, C++, C#, Julia, JSON, Arduino, SageMath, Mathematica

Scripting and Markup: LaTeX, HTML, CSS

Technical Skills: Mathematical Modelling, Algorithm Design, Scientific Writing, Computational Physical Simulation, Confidence Testing, Database Management, Scientific Visualization, 3D Modelling

Professional Leadership Experience

Constructor University Physics & Data Science Undergraduate Major Representative | Aug. 2024 - Present

- Advocated for students in all Physics & Data Science (PhDS) major related affairs
- Coordinated a guest lecture on entropy, actively engaged in the hiring process of a graduate Advanced Material Sciences associate professor, and confidently voiced student concerns to the Board of Academic Affairs at Constructor University

Physics Society Public Relations Head | Aug 2023 - Jan 2024

- Initiated networking with professors at other universities to hold guest lectures on campus and online
- Advertised and planned a major Physics-related seminar open to undergraduate students

Constructor University Rowing Team President | 2024 Season – Present

- Conducted trainings 5 times a week, while ensuring all rowers had an enjoyable experience

Academic Achievements

High School Achievements | 2021 - 2023

- Top 1 in Graduating Class (2023)
- High School Valedictorian (2023)
- IB Total Score: 44/45 (Top 2% Worldwide)

Subject Awards | 2021 - 2023

- Higher Level Physics Award (2023)
- Higher Level Mathematics Award (2022 and 2023)
- Business Management Award (2022 and 2023)
- Theory of Knowledge Award (2022)
- French Award (2021)
- Band Award (2021)
- Physical Education Award (2021)

Exam Achievements | 2023

- SAT: 1430 (98th percentile)
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