

Nathaniel S. Keplinger

720-346-4333 | nathankep@gmail.com | <https://www.linkedin.com/in/nathaniel-keplinger/>

Education

Colorado School of Mines , Golden, CO	Expected Graduation Dec 2022
Master of Science – MS Data Science	
Trinity University , San Antonio, TX	August 2017 - May 2021
Bachelor of Science – majors in Physics and Chinese	
CET - Harbin Institute of Technology , Harbin, China	Summer 2019
Intensive Chinese nine-week language program.	

Relevant Coursework

Machine Learning, Data Science, Statistical Methods, Advanced Photonics, Partial Differential Equations, Linear Algebra, Differential Equations, Classical Mechanics, Statistical Physics and Thermodynamics, Quantum Physics 1, Waves and Optics | Advanced Chinese, Classical Chinese

Research Experience

Department of Physics and Astronomy, Trinity University, San Antonio TX August 2019 – May 2021
Lead a project analyzing the acoustic spectra of various oboe sound files.

- Wrote MATLAB code to window the audio files, take Fourier transforms, locate harmonics of the spectrum and their peaks, and other algorithms to better understand how the timbre of an oboe presents itself in the acoustic spectra. These acoustic features can be leveraged for machine learning purposes.
 - Quantified and located the portions of the acoustic spectra that contribute classify various oboes.
- Worked on deriving a group-theoretical description for the permutation symmetries of four ultracold atoms
- Worked deriving a hyper-spherical representation for the four-particle permutation group.

Skills

Programming Languages: C++, Scala, Python (NumPy, Pandas, Scikit-learn), SQL, MATLAB

Software: Creo Parametric 3.0, Microsoft Excel, Jupyter Notebooks

Languages: Chinese (Advanced), Spanish (Intermediate)

Lab Experience

- Utilized an atomic force microscope to image, analyze and measure the specifications of bacteria and metal samples. Validated the dimension specifications of these samples.
- Utilized lock-in amplifiers and oscilloscopes for modulation spectroscopy to examine laser and other optical properties.
- Proficient in MATLAB and Excel for statistical and computational analysis and math modeling.
- Wrote technical lab reports with relevant error analysis in LaTeX

Leadership

Communications Chair, Trinity University Student Government Association January 2019 – May 2019

- Facilitated communication between the student senate and president.
- Wrote and published press releases in the campus newspaper on behalf of the Student Government.

Campus Involvement

Trinity University Club Lacrosse Team Member August 2017 – May 2021
University Chess Club Member August 2017 – May 2021
Trinity University Club Lacrosse Treasurer January 2020 – May 2020

- Managed club funds used for games and apparel.