Kyler Sood

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Innovative ChemE/CS sophomore seeking a rigorous internship in engineering, machine learning, or quantitative trading. I bring proven technical, collaborative, and leadership experience and wish to apply my passion for engineering in a challenging environment whlie producing results and developing my career.

EDUCATION

UNIVERSITY OF MINNESOTA, TWIN CITIES Expected Sep 2021 – May 2025 | Cumulative GPA: 4.00 | 124 credits

Honors B.S. in Chemical Engineering

Undergraduate Courses

CHEN 2001 - Mass and Energy Balances • MATS 3011 - Materials Sci and Eng • MATH 5707 - Graph Theory
CSCI 4041H - Honors Algorithms and Data Structures • MATH 5588 - Partial Differential Equations I/II

Graduate Courses

CSCI 5525 - Advanced Machine Learning • EE 5271 - Robot Vision • EE 5241 - Optimal Control and RL
CSCI 5980 - NLP with Deep Learning • CSCI 5527 - Deep Learning

SCIENCE HILL HIGH SCHOOL Aug 2018 - May 2021 | Johnson City, TN

Valedictorian and graduate in three years at age 15. UW GPA: 4.00. W GPA: 4.70. 35 ACT Composite.
Dual enrollment (48 credits) at Rice University, East TN State University, Austin Peay State University with 4.0 GPA.
Completed 11 AP courses (46 credits) with average exam score 4.82/5.
President and founder of Coding Club, where I taught 30 high school students to code in Python.

Relevant Courses

Organic Chemistry I/II + Lab • Abstract Linear Algebra • Numerical Linear Algebra • Computational Physics

TECHNICAL EXPERIENCE

DEEP REINFORCEMENT LEARNING

Research with a postdoctorate on stratification methods to improve agent performance in winding episodic tasks. Implementing DRL algorithms for control and decision processes using RLLib, OpenAI Gym, and Stable Baselines.

TEACHING ASSISTANT

TA for CSCI 1933, a Java algorithms and data structures course. Led labs and office hours, produced lab and project write-ups, and gave supplementary 1:1 instruction for students.

SMALLSAT LAB - ADCS GROUP

Developed MATLAB code to numerically simulate satellite's power states and pointing. Modeling solar radiation torque using Altair CFD and developing onboard ADCS service using C++.

COMPUTATIONAL PHYSICS

Computational simulations in Fortran for n-body problem, heat transfer, and Lorentz force. Studied theory of numerical methods for differentiation, integration, and ODEs.

PROJECTS

DEEP LEARNING

Surveyed ML techinques including random forests, DNDTs, gradient boosting, neural networks, and bagging ensembles to predict water potability. Using PyTorch, developed CNNs and transfer learning to identify flowers.

FEATURE SELECTION

Using numerical linear algebra, I developed a machine learning model to filter relevant features from multifaceted data. Using PCA, SFS, and logistic regression, it predicts tumor malignancy and heart attacks with 97% accuracy.

KEY SKILLS

PROGRAMMING

Algorithms/Data Structures in Java, Python • Pytorch, Scikit-Learn, SciPy, NumPy, Pandas, NetworkX • RLLib, Gym

APPLIED MATH

Numerical Linear Algebra • Deep/Reinforcement Learning • Graph Theory • Numerical Methods for ODEs, PDEs