Saad Mohiuddin

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EDUCATION

Ph.D. in Physics Jan 2022 - present

Oklahoma State University | Stillwater, OK

- Relevant courses: Experimental Methods in High Energy Physics, Computational Simulation Methods in Physics, Artificial Intelligence

Bachelor of Science in Physics Aug 2017 - June 2021

University of Hong Kong | Hong Kong S.A.R.

- Full Tuition Scholarship
- CGPA: 3.4
- Relevant courses: Quantum Mechanics, Deep Learning, Machine Learning in Physics
- Final Year Project in fabricating heterostructures to measure properties of High temperature superconductors.

Exchange semester January 2020 - May 2020

McGill University | Montreal, Canada

- CGPA: 3.88
- Courses: Quantum Mechanics 2, Electromagnetic Waves, Algorithms and Data Structures, Modern Physics Lab, Statistical Mechanics

RESEARCH EXPERIENCE

Experimental High Energy Physics Jun 2023 – Present

Advisor: Dr. Alexander Khanov | Oklahoma State University | Stillwater, OK

- Calculating Calibration scale factors for a transformer based jet flavor tagger (GN2) for the ATLAS experiment at the Large Hadron Collider.
- Training autoencoders for event based Anomaly Detection in ATLAS data.
- Working on multivariate analysis of associated production of Higgs boson with vector quarks, with the Higgs decaying into two b quarks.
- Working on making the state of the art, transformer based jet flavor taggers ATLAS to be more robust against mismodelling of jets.

Experimental High Energy Physics July 2019 – August 2019

High Energy Particle Physics Group| University of Hong Kong |Hong Kong S.A.R.

- As part of the Summer Research Fellowship program, got familiar with tools used for high energy physics analysis at LHC such as Root, C++ macros, autoencoders, and event generators like madgraph .

TEACHING EXPERIENCE

Teaching Assistant Jan 2022 – May 2024

Oklahoma State University | Stillwater, OK

- Taught laboratory and discussion sessions for undergraduate physics courses: PHYS2014 and PHYS1114
- Conducted special sessons for exam sessions to rooms of 100-200 students.

TECHNICAL SKILLS

Languages: Python, R, C++, bash

Software and tools: Tensorflow, Pytorch, LabVIEW, MATLAB

Mathematics: Multivariate Calculus, Statistics Calculus, Multidimensional Integrals, Linear Algebra

OTHER EXPERIENCE

International Physicists' tournament April 2023

Ecole Polytechnique | Paris, France

- Part of a team of 6 that competed in and won the American Physicists Tournament and got selected to represent USA in the International Physicists' Tournament taking place in Paris in 2023.
- Worked on and presented solutions to open-ended physics problems using both theoretical and experimental methods

Common Purpose Leadership Development Programme June – July 2019

Common Purpose and On-Off group | Manila, The Phillipines

- Attended workshops on cultural intelligence and leadership as part of Common Purpose Leadership Development Programme.
- Did market research for a Design-Thinking Company (On-Off Group Manila) to help them expand into new markets.

AWARDS

1st Place Team Member | United States Physicist's Tournament 2022

1st Place | Startup Frenzy Competition | Riata Center 2022

1st Place | Pitch and Poster | Riata Center 2022