MOTIVATION FOR CHOOSING THE SMARTHEP BALER-AUTOENCODER PROPOSAL

It is of great delight to have this opportunity to contribute to the HSF Project Proposals.

I have continued to develop increasing knowledge and skills in Physics, Computational Mechanics and Software Engineering over the years. I have an academic background in mathematics, numerical methods/vectorization and computational mechanics as an Engineering Student.

I have become aware of the importance of High Energy Physics, Data Science and Machine Learning in making discoveries and understanding complex occurrences on earth and in the universe, which would lead to generating solutions to challenges that humans encounter. I have sought to make contributions to this field with the aim of generating solutions to challenges faced by humankind. To pursue my goals, I decided to further specialize in Software Engineering and High Energy Physics.

I am interested in participating in the SMARTHEP Baler-Autoencoder Project as an undergraduate student. And in providing tangible contribution to the ongoing research in the field of High Energy Physics (HEP). I am expressing my interest as I am on my quest to gain the needed knowledge and skills in Software Engineering and Management in the domain of Physics. I am deeply passionate about participating in this field of research based on my background in physics, and level of skill in developing in the python and C++ languages utilizing tools for machine learning, concurrency and data-memory management. With my determination and dedication I would help serve in developing the Baler project, help generate value for the larger High Energy Physics and Computational/Data Science community.

With familiarity of the HSF projects, I am particularly interested in contributing to the SMARTHEP project and to be mentored by Prof. Caterina Doglioni and Alexander Ekman. This would help me develop expertise in technologies utilized in the project, such as utilizing the ROOT file format using the Baler tool, Baler Compression tool and Autoencoder Neural Networks which I have some knowledge about having gained some experience with the use of Machine Learning Models, Data/Memory Management and Data Visualization in python as well as familiarity UNIX, matplotlib and evaluating Neural Networks. I anticipate using skills in physics, software engineering, data science and machine learning to contribute to the ongoing HSF and SMARTHEP's projects.

This program would help me gain needed skills in utilizing Baler in HEP. I would gain technical expertise and skill while contributing to this software, and network with HEP Fellows and contributors to this project. I would benefit from engaging in activities with individuals that would help build my research skills and potential to impact the community.

Thank you for the opportunity, this program's offering is of optimum impact to my studies and career. I look forward to working in an environment with such diversity, standards and expertise(specialization). I am eager to dedicate full focused hours over the next couple of months humbly working with the program mentors and fellow contributors and to benefit from their experience and diverse backgrounds. I anticipate benefiting from this program, taking part in the HEP's project to reach its goal.