Predicting Flow Coefficients for Heavy Ion Collisions with Deep Learning

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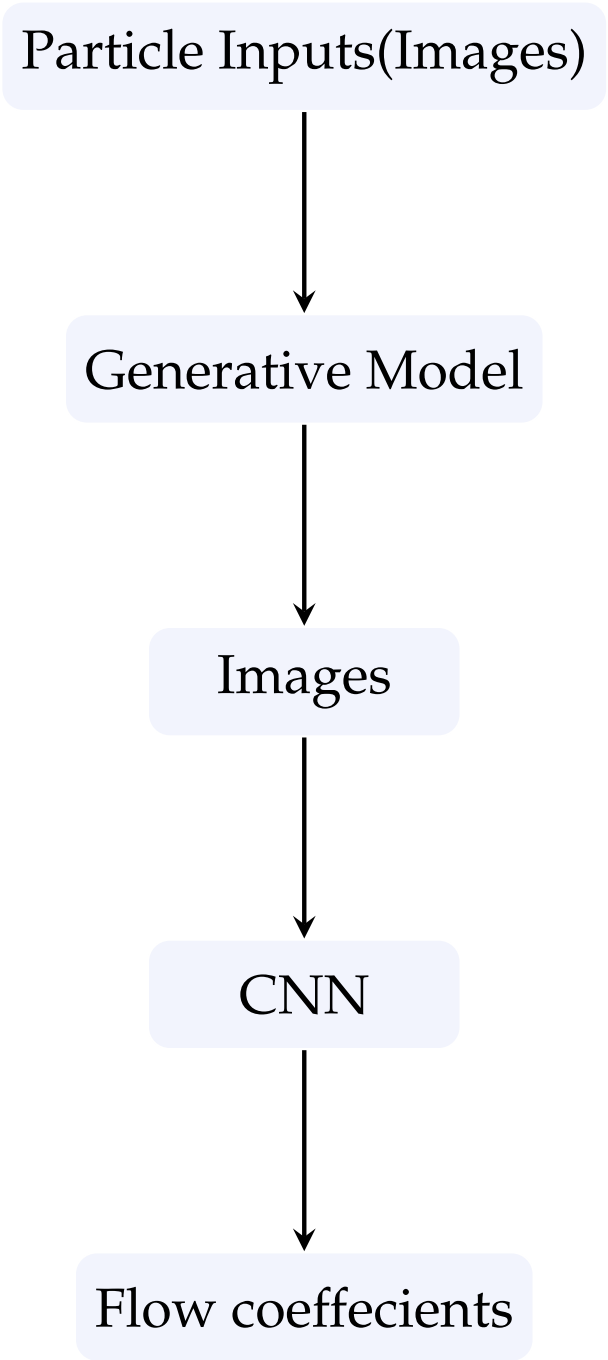
DataSet: Monte-Carlo Generated Data (PYTHIA/AMPT)

References:

- Vinicius Mikuni, et al.,"Fast Point Cloud Generation with Diffusion Models in High Energy Physics.", arXiv:2304.01266
- Neelkamal Mallick, et al."Estimating elliptic flow coefficient in heavy ion collisions using deep learning" ,Physical Review D,105:11(2022)
- Matthew Leigh, et al."PC-JeDi: Diffusion for Particle Cloud Generation in High Energy Physics." , arXiv:2303.05376

Division:

- Anna-Slide Preparation, Report Writing, Data Processing
- Arpan-Slide Preparation, Report Writing, Programming



Midesm: Get images from the Generative model.

Endsem: Obtain Flow coefficients with CNN.

- The input to the generative model will be from the simulated data(images) for different systems.
- Train the model to generate data(images) for a new system.
- Train the CNN model with the simulated data(images) to get the flow coefficients for the new system and then obtain the flow coefficients from the generated data(images).