Report on KOTO EMCal Study

Junlee Kim

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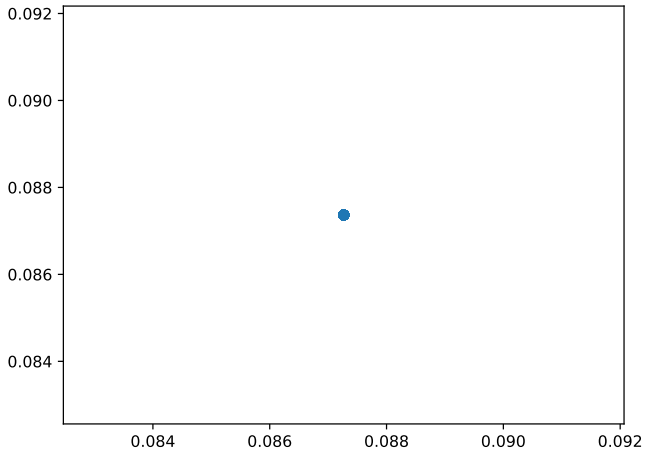
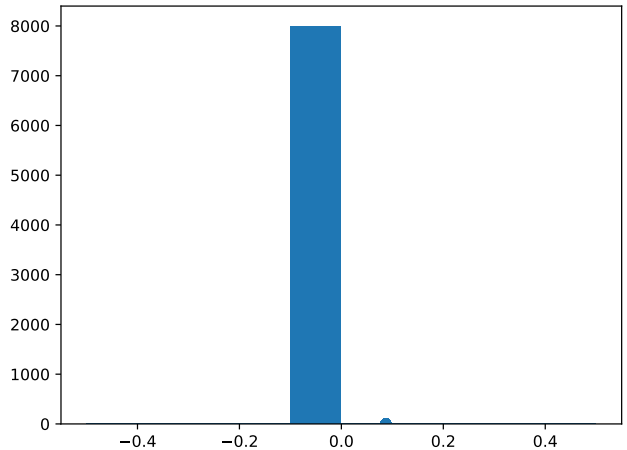
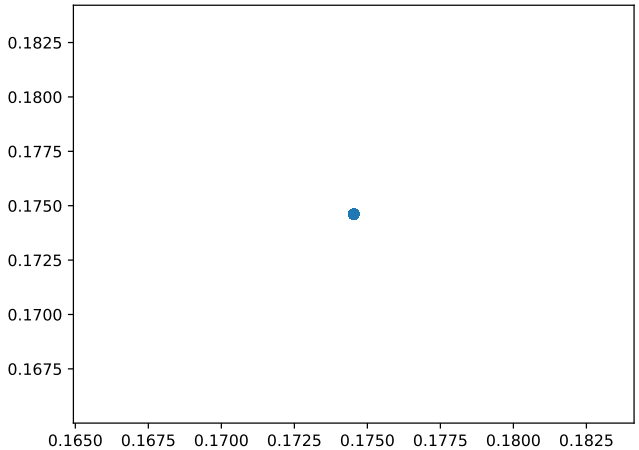
Closure test

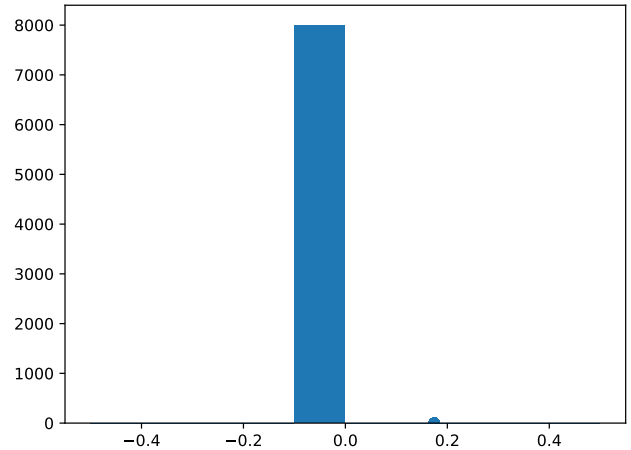


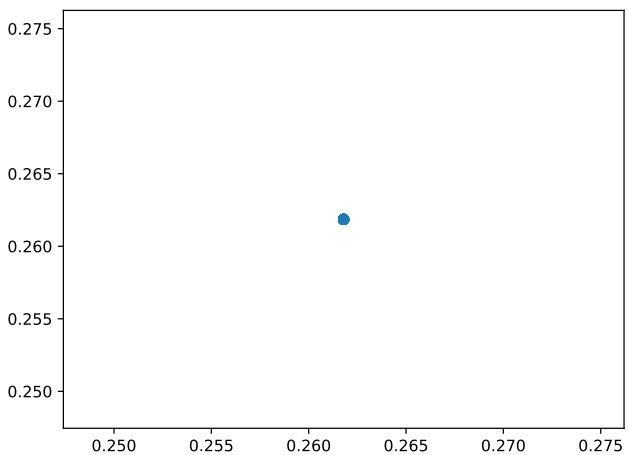


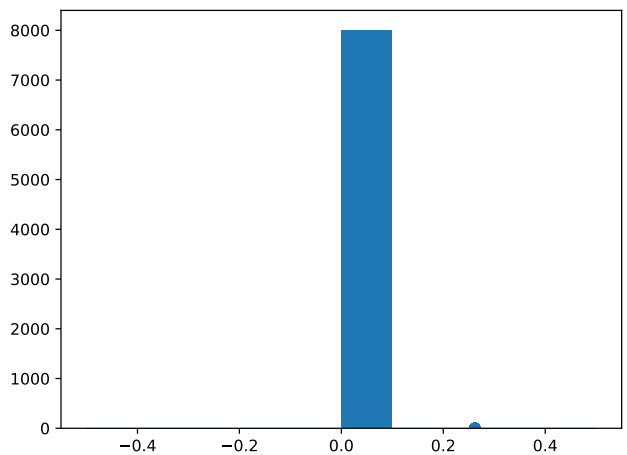
- Generate events with specific incident polar angle (10k)
- 2k events for training and 8k events for test.
- Compare prediction with true value.
  - LEFT : scatter plot with x-axis as true and y-axis as prediction
  - RIGHT : true - prediction
- Incident angle = `(5, 10, 15, 20, 25, 30)`

Closure test









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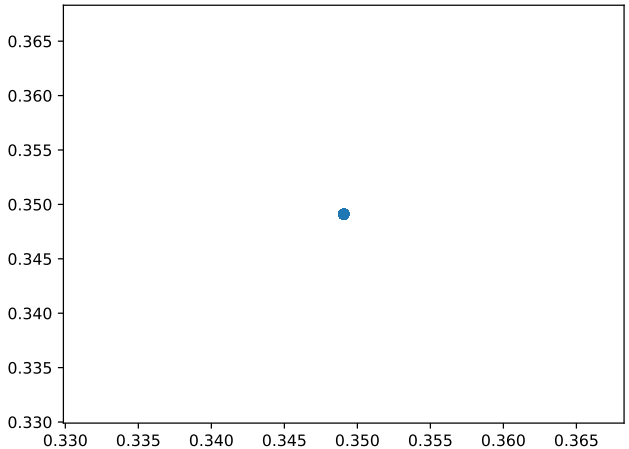

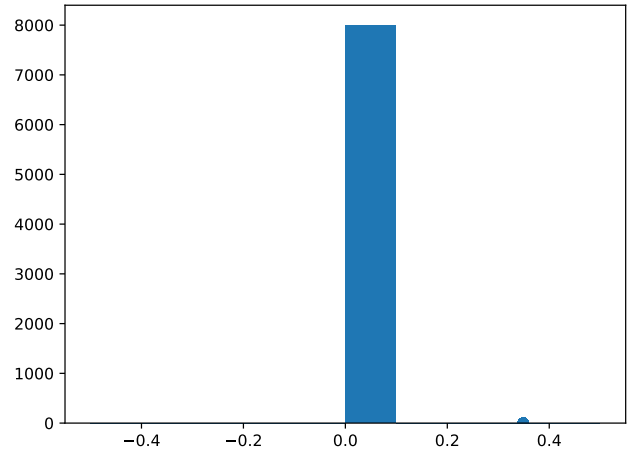

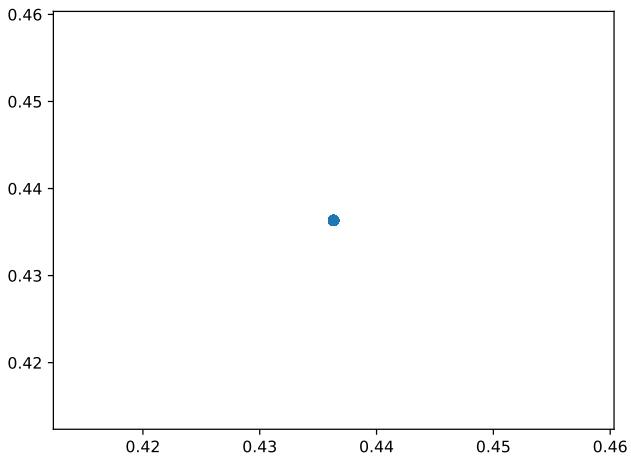

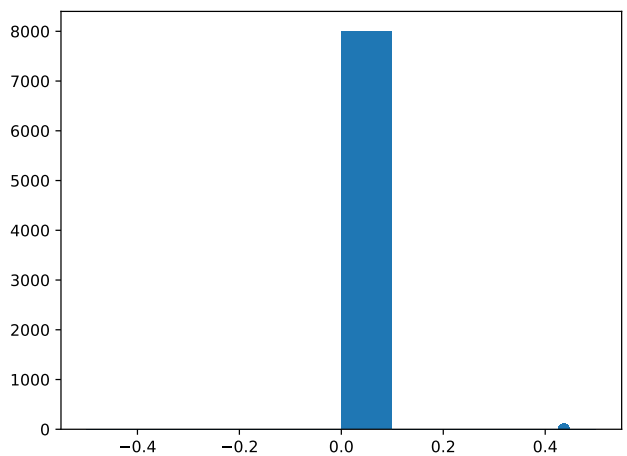

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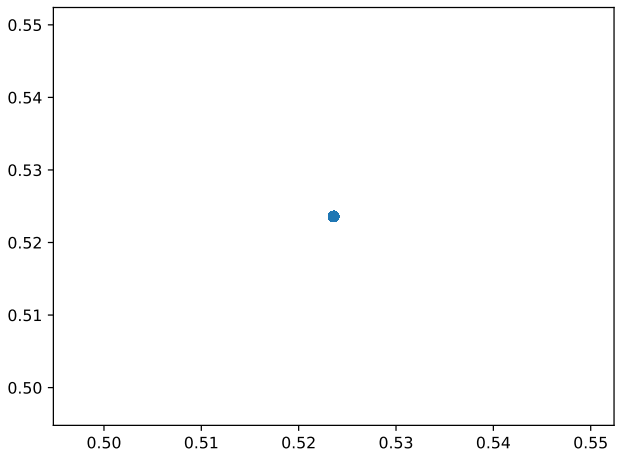
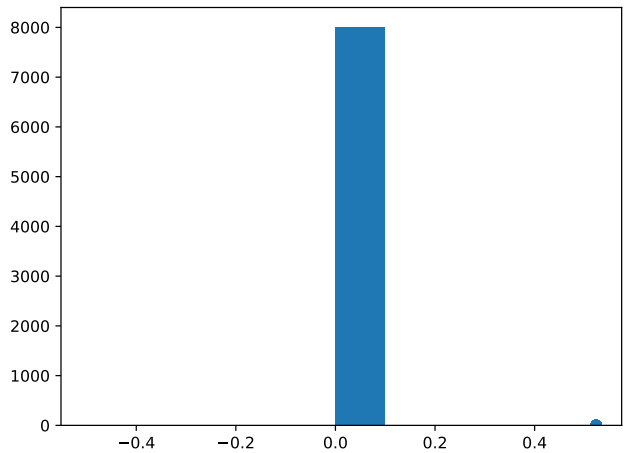
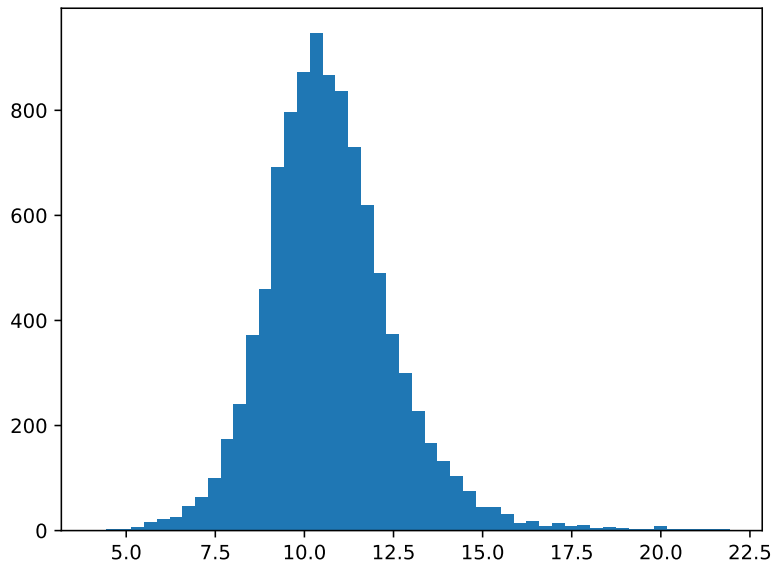




Training with random generation



- Train was done with randomly generated events ($0< \theta <30$)
- Test for fixed θ =10.
- Standard deviation : 1.8256572

Things to do

- Various setups of hidden layers and the number of neutrons in `XGBRegressor` function.
- Add timing info in the training?