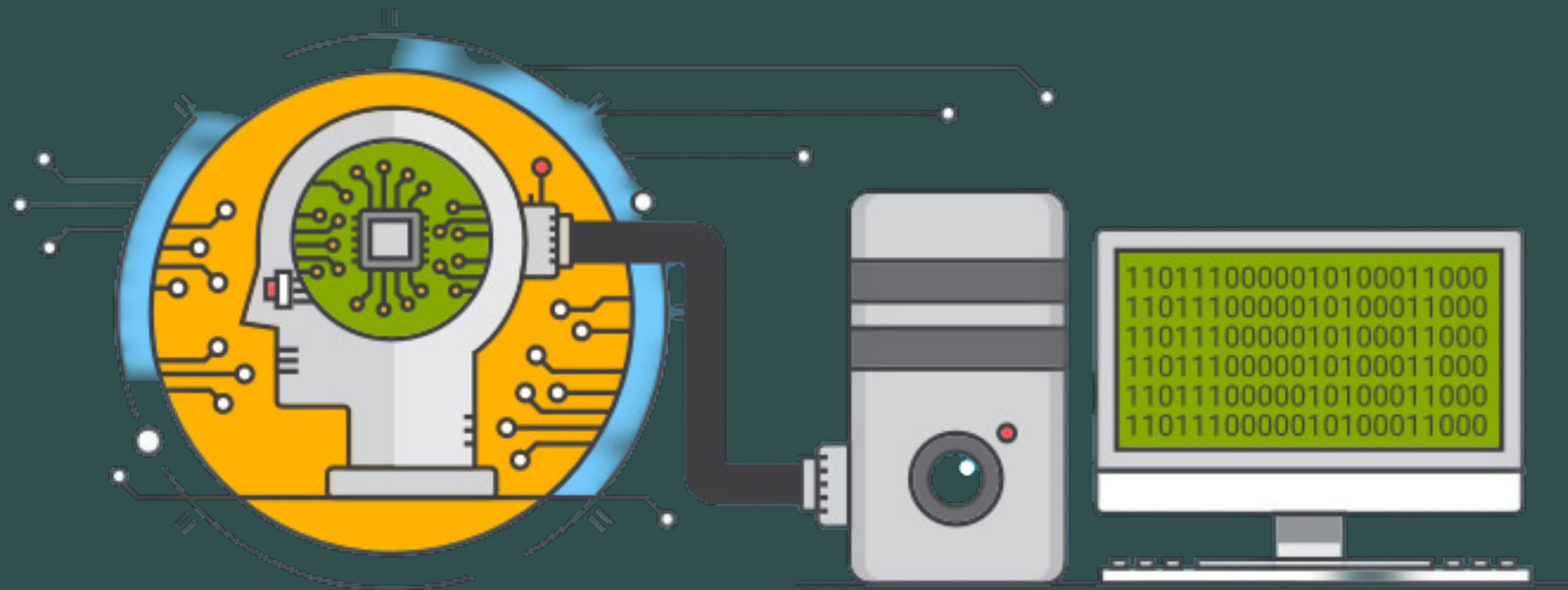


# [LDRD] Real-Time Physics Analysis using AI Track Reconstruction Online

Hall-B

G.Gavalian (PI), Richard Tyson



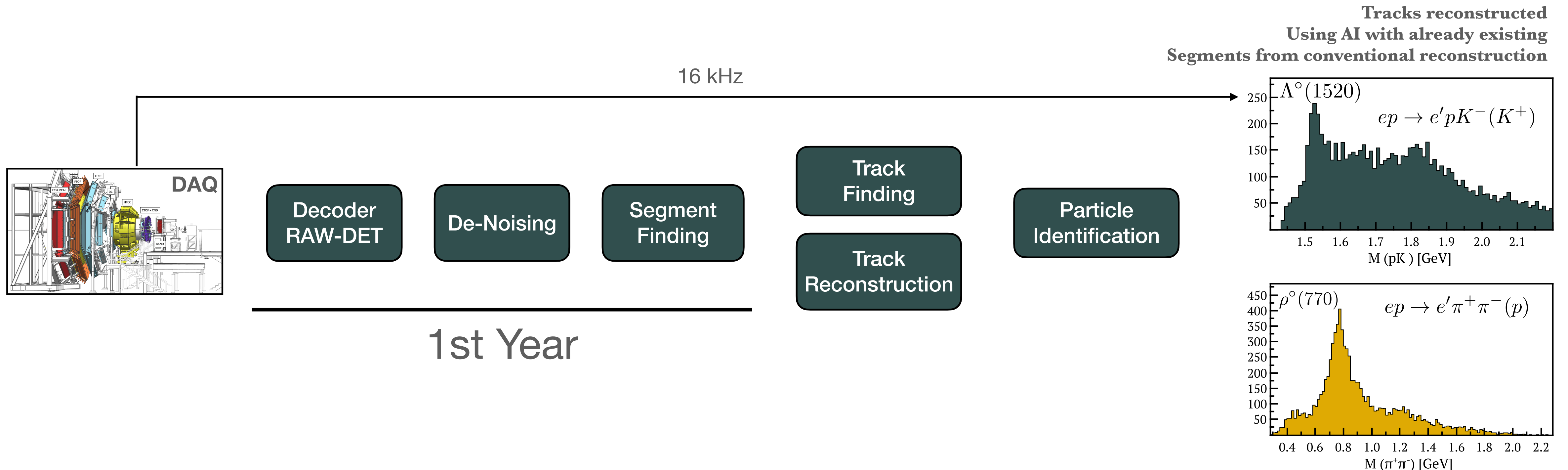
■ **Progress:**

- Implemented EVIO library capable of decoding raw data at the rate of 25kHz (standard library had memory leaks and rate of 83 Hz)
- Improved the CNN de-noising model (reducing the layers), performance increased from 157 Hz to 18 kHz (using 32 threads)
- Implemented fast segment finder to work online with speeds of DAQ, (CLAS12 segment finder works at 65 Hz)

Gagik Gavalian (PI)  
Richard Tyson,  
Post-Doc (to be hired)

■ **Next Quarter**

- Validate the segment finder with CLAS12 standard segment finder (fix the inefficiencies, if any), improve the speed
- Create a workflow for the Decoder, De-Noiser, and Segment finder to work online, investigate Multi-threading scaling
- Develop online validation and debugging tools and test the workflow during the upcoming run



- We started the project in mid-November, when we were notified about the approval.
- Advertisement for Post-Doc was drafted and submitted to HR by the end of November
- The advertisement went online on January 10th (11 days ago), and we are waiting to have enough applications to start interviews.

