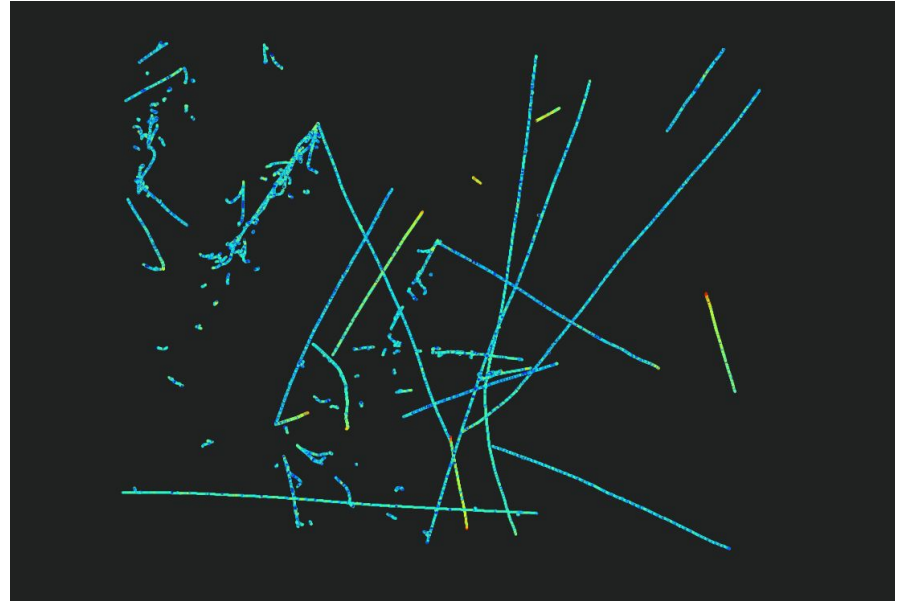


DORAEMON!



AI/ML and Neutrino Physics

- Deep learning applications “end-to-end” (i.e. start from “raw” image)
- Many experiments, siloed R&D per experiment, little public data
 - Barrier to share results, efforts duplicated (R&D, training, etc.)



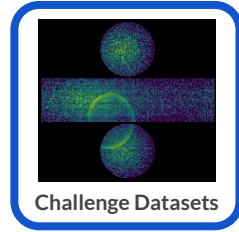
DORAEMON

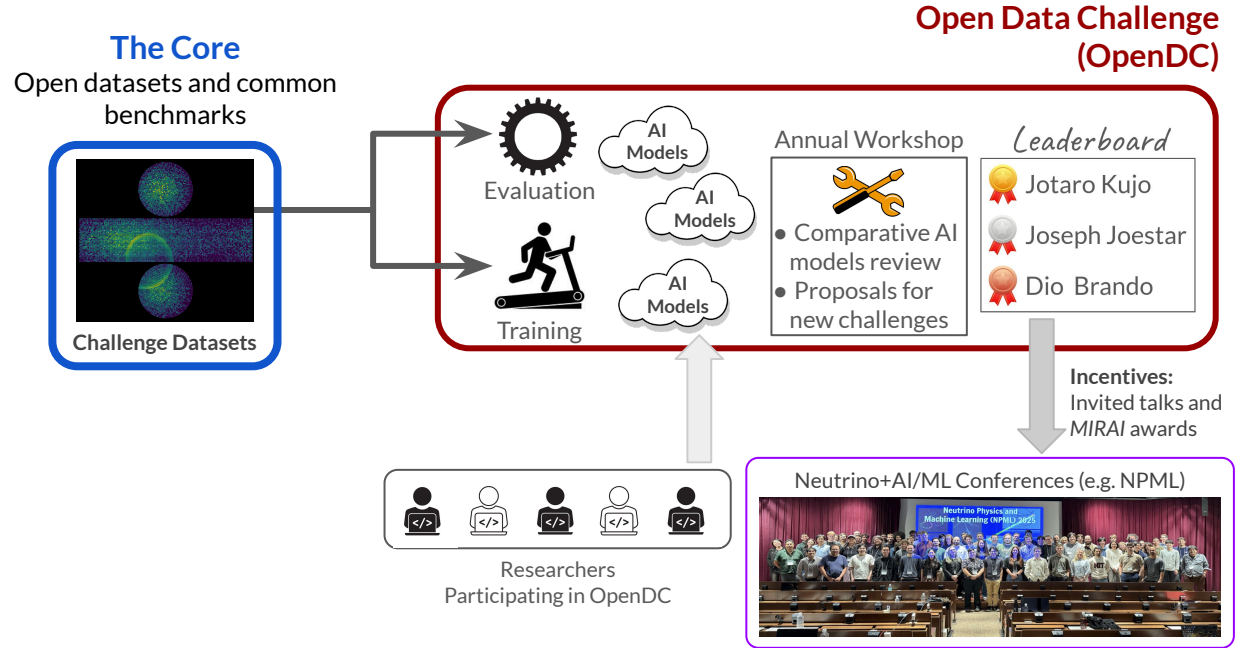
Goal: AI R&D community that **builds**, **integrates**, and **shares** AI knowledge.

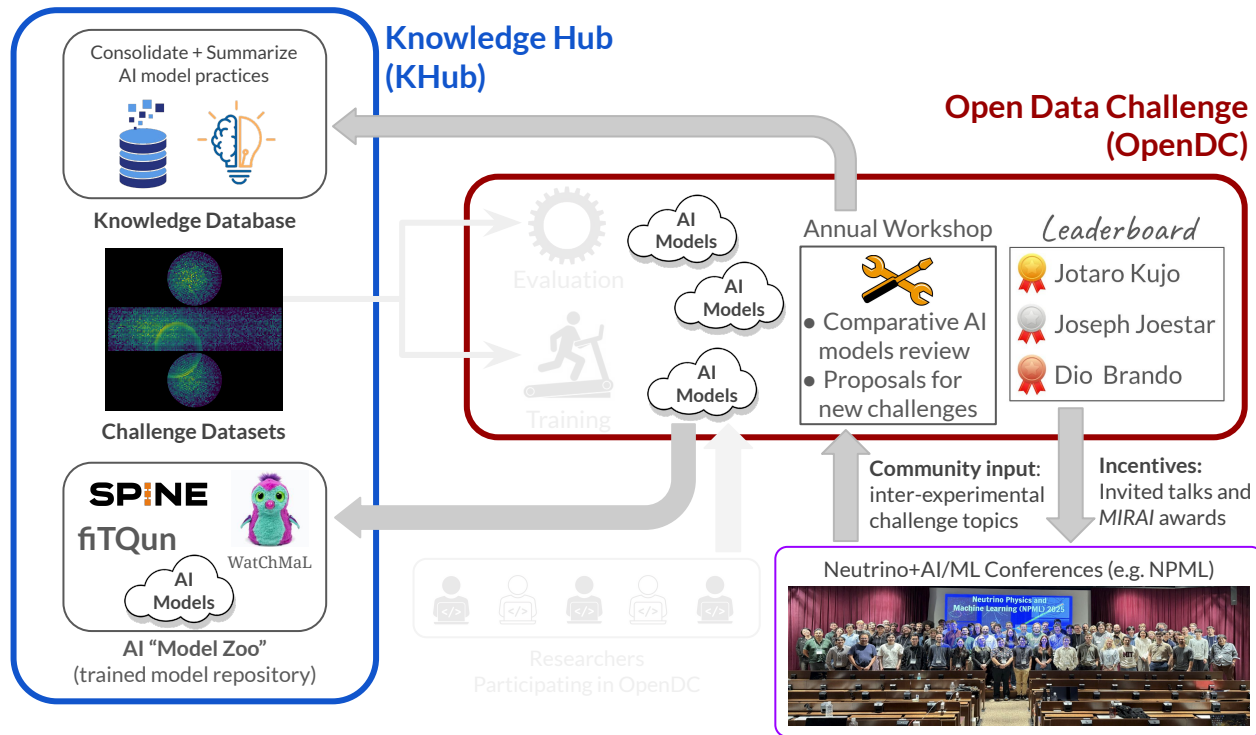
- **Open Data Challenge (OpenDC)**: Identify common research challenges in the neutrino community, define AI task and benchmark metrics, develop AI solutions.
- **Knowledge Hub (KHub)**: Integrate data, AI models, knowledge and insights from OpenDC to provide the standards and best practices for AI R&D in neutrino physics
- **Community Engagement (CE)**: Share the contents of KHub with the community through a curriculum-based AI school, applications R&D for experiments using developed AI models

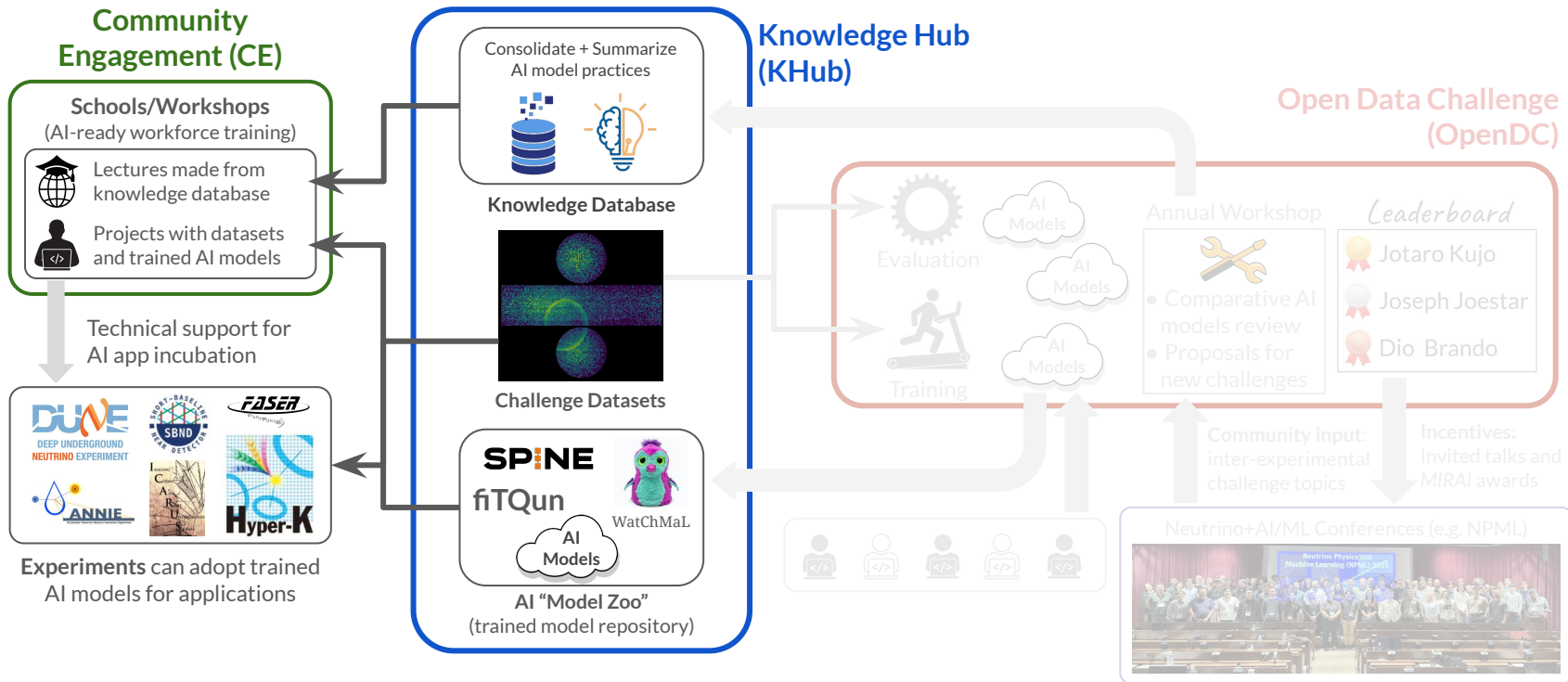
The Core

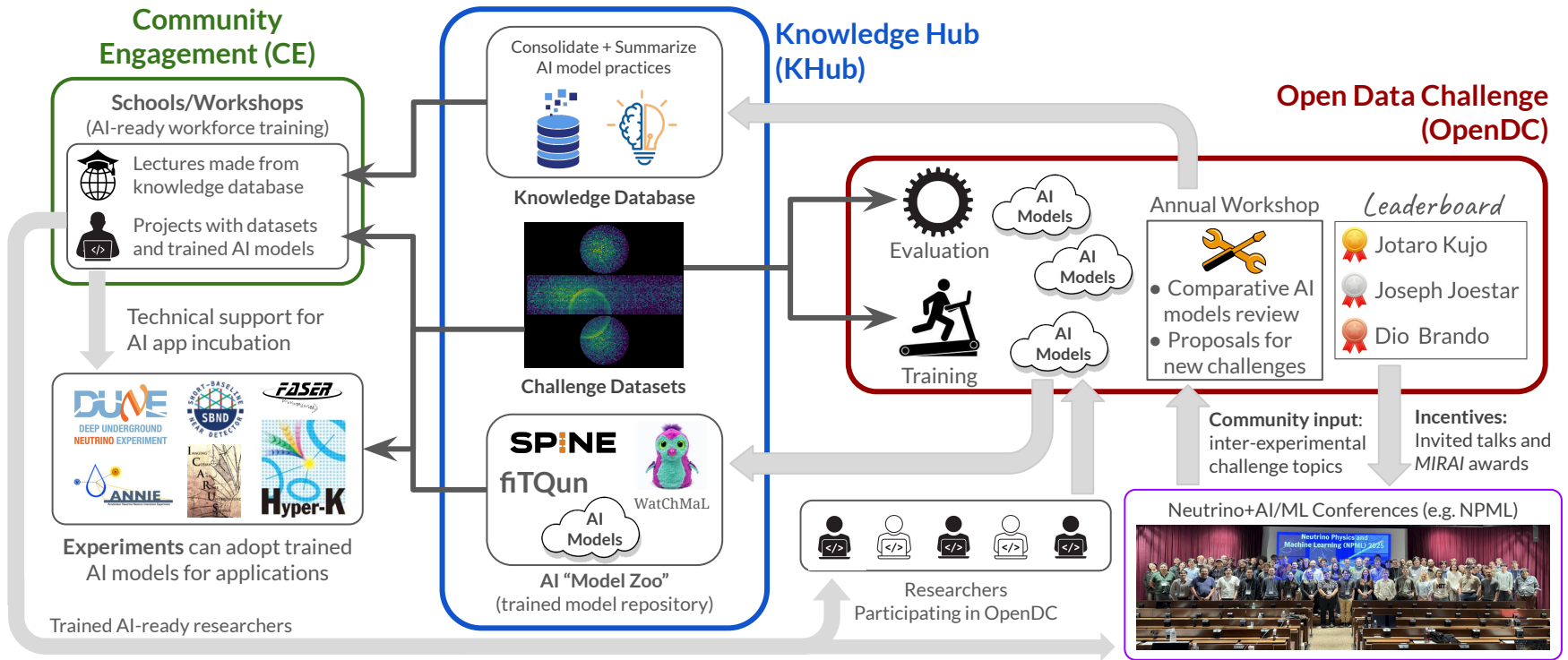
Open datasets and common
benchmarks











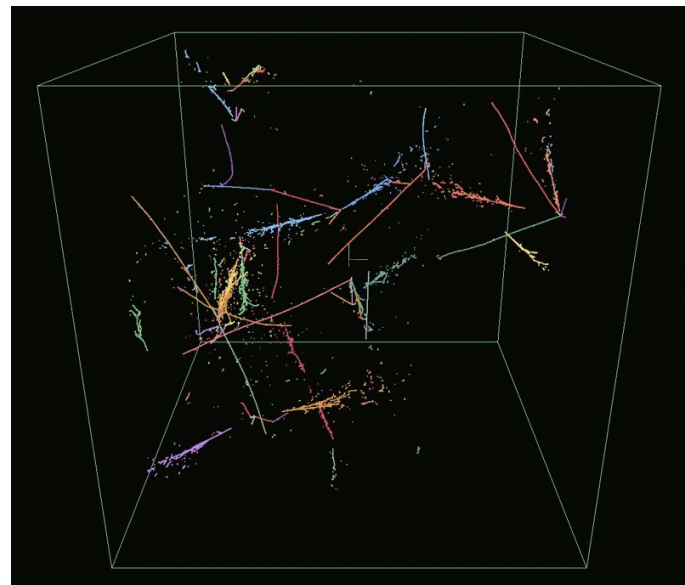
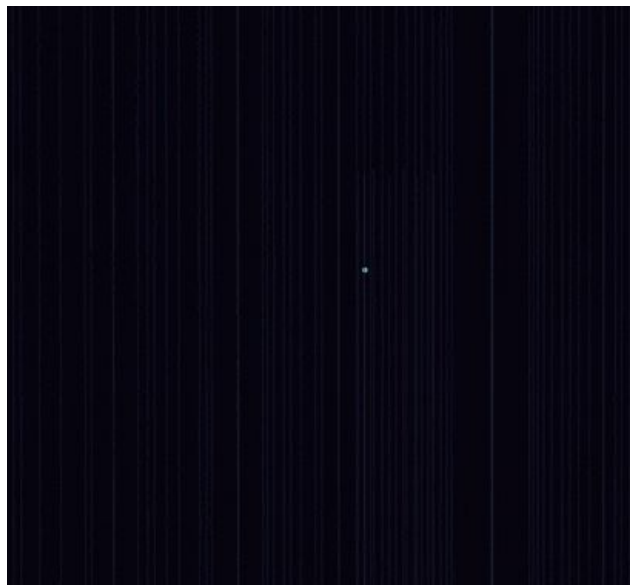
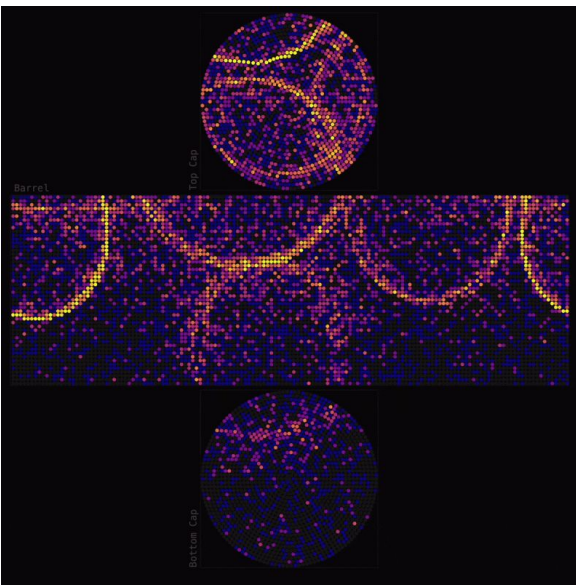
Goal of Doraemon

AI R&D community that **builds**, **integrates**, and **shares** knowledge.

To Kick-off: Three Data Challenges

1. Data reconstruction (and Foundation Models)
2. Event reweighting via combined event generators
3. Fast surrogate for forward-folding of an experiment pipeline

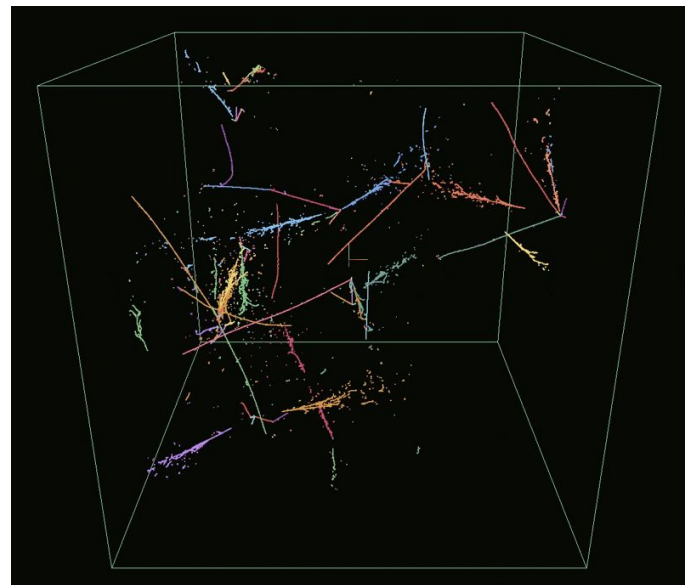
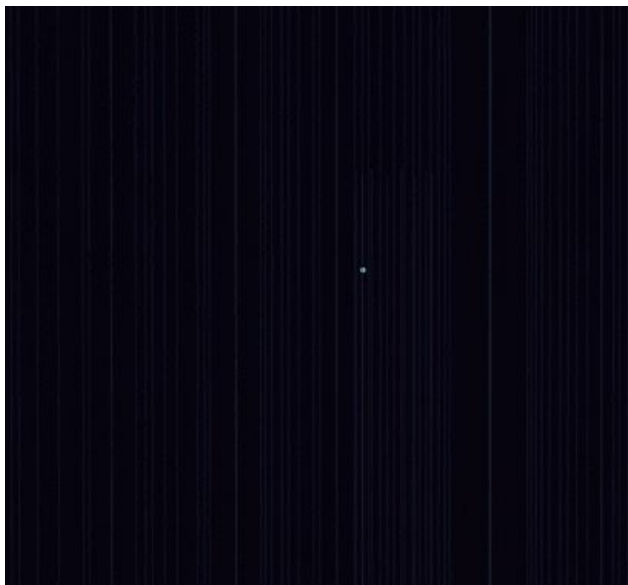
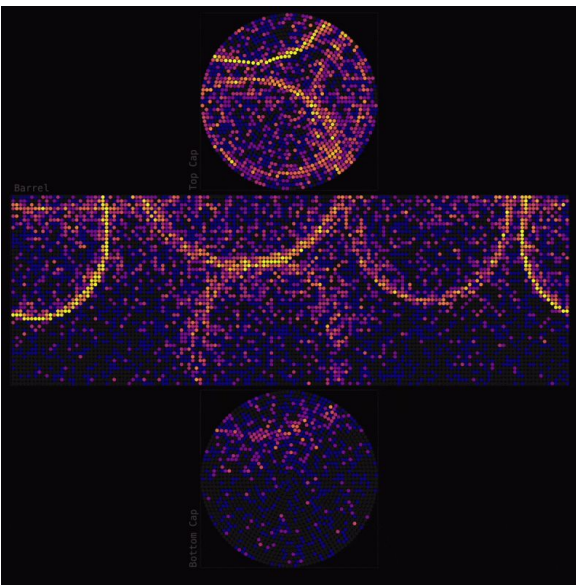
**Choice from
the workshop
(see [Roger's](#))**



To Kick-off: Three Data Challenges

1. Data reconstruction (and Foundation Models)
2. Event reweighting via combined event generators
3. Fast surrogate for forward-folding of an experiment pipeline

**Target: first
release by the
end of CY26**



Closing

- DORAEMON's goals:
 - OpenDC - build AI solutions to address common challenges in the community
 - KHub - integrate data, AI models, insights and lessons learned as “knowledge”
 - CE - share the standards / best practices backed up with research with members
- Three data challenges to kick-off the effort
- US-Japan AI project, funded by the US Genesis Mission (GM)
 - GM Infrastructures shared with collaborators from Japan
 - Data storage and streaming (Fermilab)
 - Inference service (NERSC)
 - AI model host (ANL)
 - ... also a guinea pig to make those infrastructure “work” for a usecase
 - How can we combine those services together? No one has done it.

End