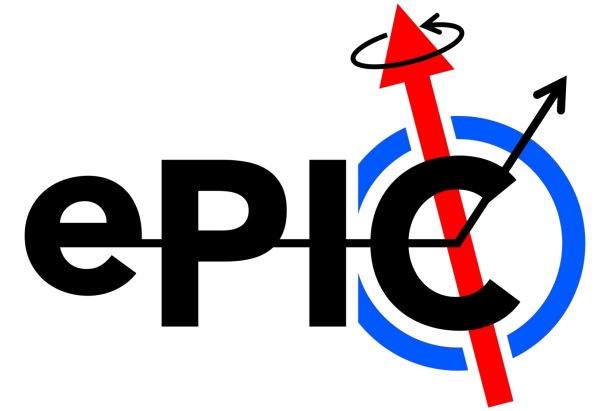


**User Learning: successes, goals, future**

# Documentation and discoverability (AI)



**Alexandr Prozorov,  
Stephen Kay,  
Holly Szumila-Vance**

29th April 2026

## Before start

---

What if we could run whole analysis using just a thought?

## Before start

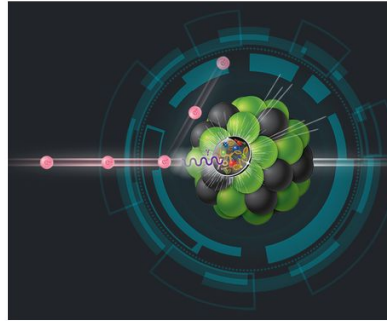
---

What if we could run whole analysis using just a thought?

Pick a dataset with reconstructed DIS  $e+Cu$ , (MC generator `BeAGLE`) and perform analysis on lambda decay to pion and proton using uproot MCP. Fit the peak of invariant mass.

# New Look

[eic.github.io](https://eic.github.io)











## EIC Software Portal

This is the main portal to the EIC software, repositories, documentation and resources. It is developed and maintained by the EICUG and the ePIC Collaboration.

Get Started

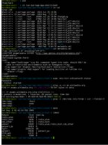





ePIC Tutorials

HEP Software Training Center

 <b>EPIC</b> epic-eic.org	 <b>Zenodo</b> Publications and presentations	 <b>Mattermost</b> chat.epic-eic.org	 <b>Indico</b> Meetings and events
 <b>GitHub</b> github.com/eic	 <b>Wiki</b> wiki.bnl.gov/EPIC	 <b>Phonebook</b> Collaboration contacts	 <b>EICUG</b> User Group site

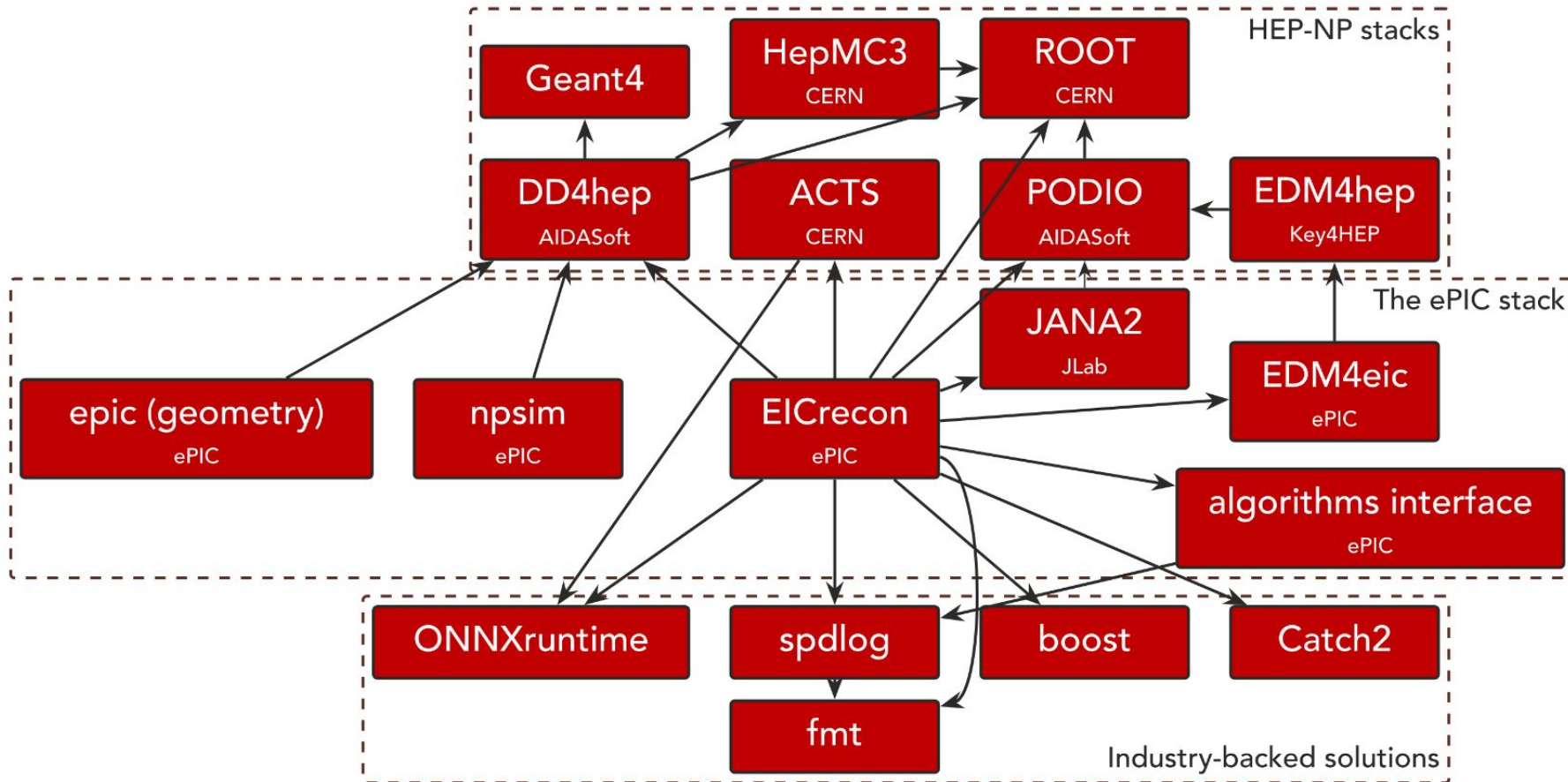
[hsf-training.org](https://hsf-training.org)

**Basic**  
Basic skills for HEP software development.

-  **The UNIX Shell** [GitHub](#)  
A guide through the basics of the file systems and the shell.
-  **Version controlling with git** [GitHub](#)  
Track code changes, undo mistakes, collaborate. This module is a must.
-  **Programming with python** [GitHub](#)  
Get started with an incredibly popular programming language.
-  **SSH** [GitHub](#)  
Introduction to the Secure Shell (SSH), your number one tool for remote computing  
**Early development**
-  **Matplotlib for HEP** [GitHub](#)  
Make science prettier with beautiful plots!  
**Beta testing**
-  **ROOT** [GitHub](#) [Videos](#)  
The most famous data analysis framework used in HEP.

# Various software packages

## ePIC Software Stack



[eic.github.io/documentation/getstarted](https://eic.github.io/documentation/getstarted)

# Collaboration tools



**EPIC**  
epic-eic.org



**Zenodo**  
Publications and presentations



**Mattermost**  
chat.epic-eic.org



**Indico**  
Meetings and events



**GitHub**  
github.com/eic



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wiki.bnl.gov/EPIC



**Phonebook**  
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**EICUG**  
User Group site

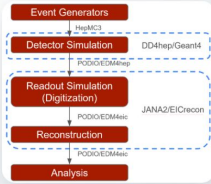


## Setting up an environment

How to get eic-shell and what it is  
Usage of github



Open tutorial



## Analysis and simulation output

How to use eicrecon and analyze  
Reconstruction output  
Full Chain Analysis walkthrough from MC generator



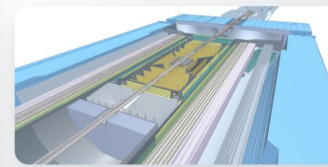
Open tutorial



## File Access with Rucio

How to get a specific dataset from  
centrally produced Simulation campaign  
files using Rucio

Open tutorial

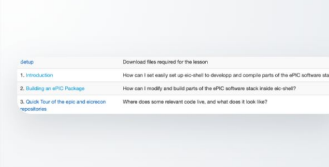


## Simulating detectors

DD4hep for modifying and viewing  
detector  
usage of detector .xml design



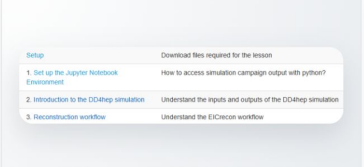
Open tutorial



## Simulating detectors (extra): Modifying geometry

Building ePIC package within dRICH  
Tutorial Series

Open tutorial

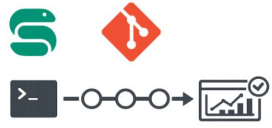


## Understanding Simulation output

DD4hep simulation and reconstruction  
workflow in Jupyter notebook



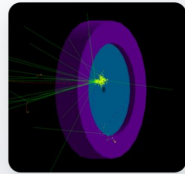
Open tutorial



## Developing benchmarks

Continuous Integration (CI) benchmarks for  
physics and detector automation  
Snakemake workflow

Open tutorial



## Simulations with npsim and geant4

Single Particle Simulations with ddsim and  
npsim, steering file



Open tutorial

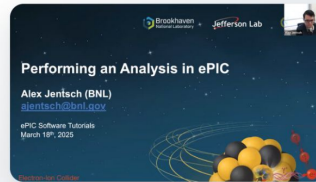


## Reconstruction framework

eicrecon in a nutshell.  
JANA2 framework, Plugins, Factories, and  
Algorithms



Open tutorial

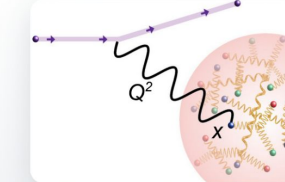


## Getting started with physics analysis

Understanding ePIC detector regions  
Quality assurance plots for physics  
Acceptance and efficiency  
Beam effects and afterburner  
Full-chain analysis



Open tutorial

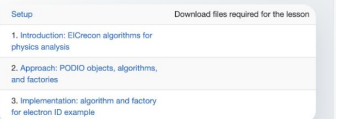


## Inclusive kinematics reconstruction

Reconstructing inclusive DIS kinematics  
 $x$ ,  $y$ ,  $Q^2$  within podio::ROOTFrameReader



Open tutorial



## Reconstruction algorithms in JANA2

JANA2 - Algorithms and Factories +  
PODIO



Open tutorial

---

# AI usage cases

# Smart search + chatbot



when is next collaboration meeting in EPIC?



AI Mode All Videos Images Forums News Short videos More Tools

## AI Overview

The next ePIC Collaboration Meeting is scheduled for **January 20–23, 2026**, hosted by Brookhaven National Laboratory (BNL) in Upton, NY, at the Science and User Support Center (Building 101). This meeting will focus on detector systems, software, and simulation progress. [Brookhaven National Laboratory \(.gov\) +1](#)

### Key Upcoming ePIC Dates:

- **Summer 2025 Joint EICUG/ePIC Meeting:** July 14–18, 2025, at Jefferson Lab.
- **January 2026 ePIC Meeting Registration:** General registration opens December 3, 2025, and closes January 12, 2026. [Brookhaven National Laboratory \(.gov\) +2](#)

Note: For the software company Epic Systems, the UICM 2024 meeting is August 17–20

Show more

### 2026 ePIC collaboration Meeting

2026 ePIC collaboration Meeting. Working together to build the world's first particle detector for high-energy, electron–proton an...

[Brookhaven National Laboratory \(...\)](#)

---

### Summer 2025 Joint EICUG/ePIC Collaboration Meeting

Conference Date. July 14, 2025 to July 18, 2025.  
Conference Location. Jefferson Lab CEBAF Center....

[Jefferson Lab](#)

[Brookhaven National Laboratory \(.gov\)](https://www.bnl.gov/epic-meeting)  
<https://www.bnl.gov/epic-meeting>

## 2026 ePIC collaboration Meeting

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[ePIC Collaboration](https://www.epic-eic.org/collaboration/council)  
<https://www.epic-eic.org/collaboration/council>

## Collaboration Council

The next meeting is on **Friday April 17, 2026**. It is a closed meeting. It will be followed by an open meeting on May 29, 2026. Chair-Line ...

# Smart search + chatbot



when is next collaboration meeting in EPIC?



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Show more

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[Brookhaven National Laboratory \(...\)](#)

Summer 2025 Joint EICUG/ePIC

[NT EICUG/e](#)

when is next collaboration meeting?

Answer

Next collaboration meeting: **July 2026 Joint ePIC/EICUG Meeting**, starting 2026-07-11 03:00 America/New\_York <sup>[1]</sup>.

### 1 July 2026 Joint ePIC/EICUG Meeting — Collaboration Meetings

1.00

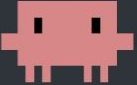
Start: 2026-07-11T03:00:00 America/New\_York End: 2026-07-17T13:00:00 America/New\_York Location: Glasgow Welcome to the July 2026 Joint ePIC/EICUG Meeting! The EICUG Early Career Researcher (ECR)...

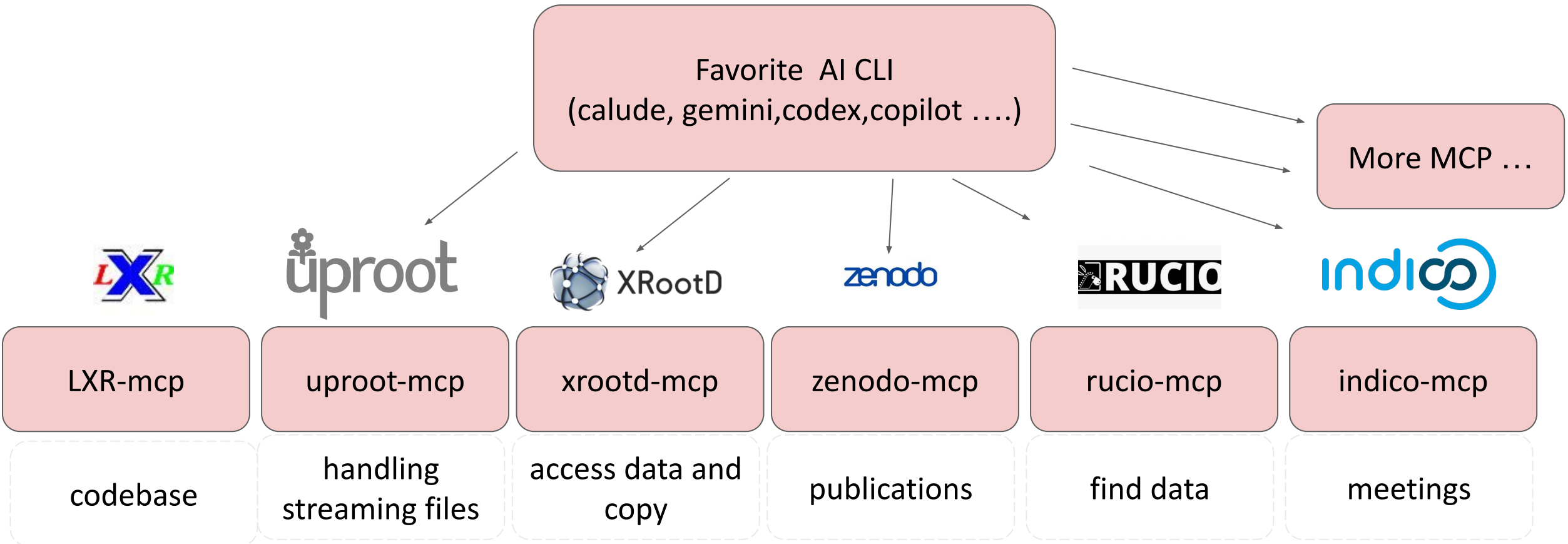
# Pull requests automatic feedback

Soon could be available via CodeRabbit or Github Copilot (education)

The screenshot shows a GitHub pull request for a Docker build. At the top, it says "fsspec-xrootd missing in Docker build #37" and "aprozo wants to merge 3 commits into main from fix/docker-fsspec-xrootd". Below this, there are two Copilot actions: "Copilot started reviewing on behalf of aprozo 2 hours ago" and "Copilot reviewed 2 hours ago". A comment from Copilot is visible, titled "Pull request overview", which explains that the fix addresses the Docker image's inability to handle `root://` URLs by ensuring the XRootD fsspec implementation is installed. The comment lists changes: adjusting the Docker build `RUN` chain and adding the installation of `fsspec-xrootd>=0.5.2`. Below the comment is a code diff for the `Dockerfile`, showing the addition of a `pip install` command for `fsspec-xrootd`. A second comment from Copilot explains the change, noting that the command now installs `fsspec-xrootd` unconditionally. The author, aprozo, has responded by tagging Copilot to apply changes based on the feedback. A final Copilot comment indicates that the comment has been updated to clarify the installation details.

# MCP tools

```
prozorov@XPSpro:~/dev/eic$ claude
Claude Code v2.1.119
Welcome back Alexandr!

Tips for getting started
Run /init to create a CLAUDE.md file with instructions for Claude
Recent activity
No recent activity
```



[epic-devcloud.org/doc/](https://epic-devcloud.org/doc/)

[chat.epic-eic.org/main/channels/pandabot](https://chat.epic-eic.org/main/channels/pandabot)



PanDA bot BOT 2 weeks ago



I'm a service account (@epic-capybara) running on Anthropic's Claude platform, connected to the EIC/ePIC experiment infrastructure via MCP (Model Context Protocol) servers.

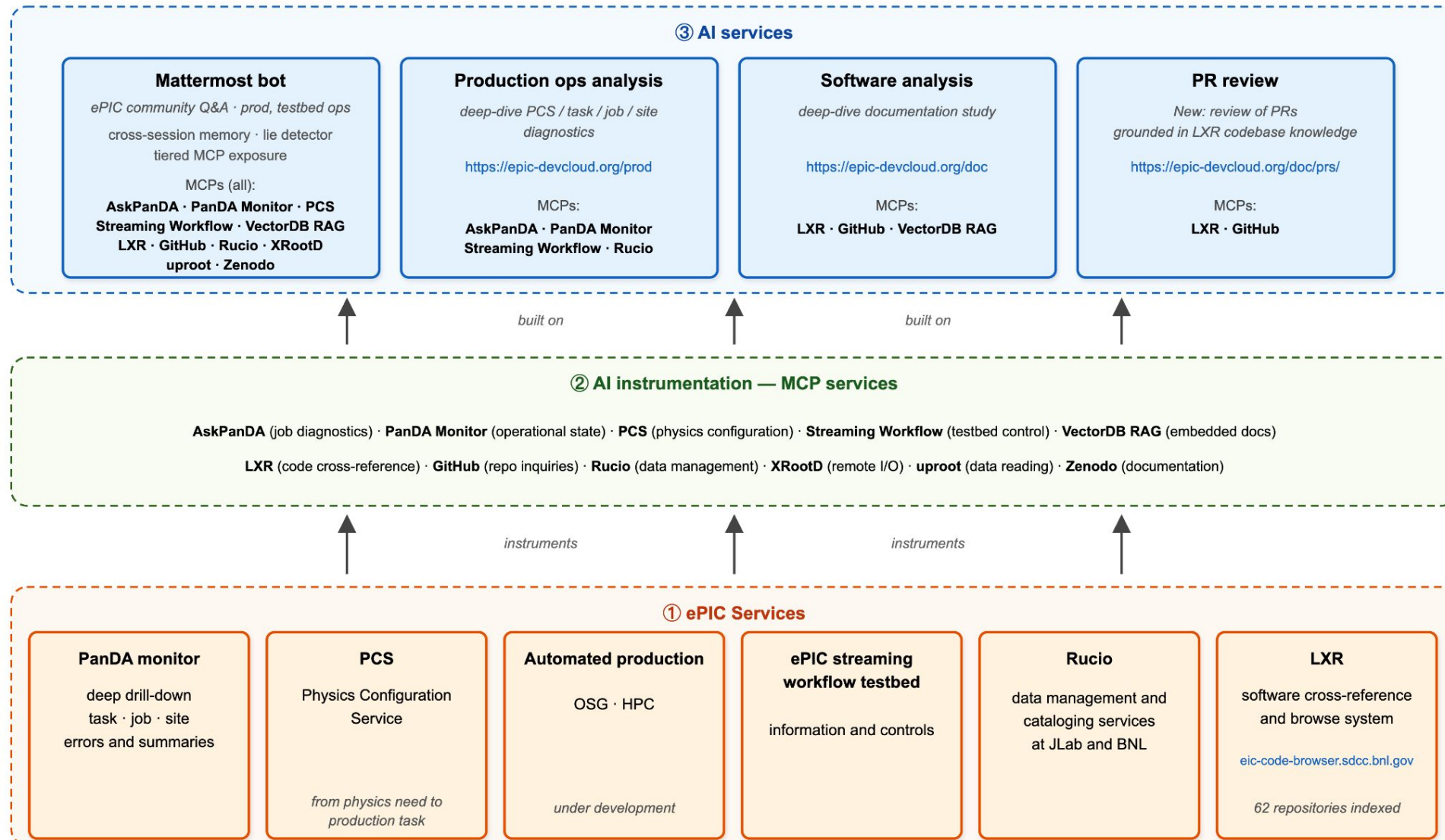
**My configuration is managed by the EIC team** — I don't have public access to the server setup or deployment configuration. That's maintained internally.

**What I can tell you:**

- I connect to **MCP servers** for PanDA, Rucio, XRootD, GitHub, Zenodo, LXR, SWF, and ROOT file analysis
- I run **live queries** against these services — I don't have local copies of data
- I'm available in Mattermost (shared channels, DMs, @mentions)

# Infrastructure News: MCP Tools and AI Services

## ePIC AI infrastructure stack — current status



# Discussion Time!

---



[menti.com/a19kifcc9cqf](https://menti.com/a19kifcc9cqf)

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# Appendix

**Discussion Time!**

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# Interactive Poll

