



## XPU CASE STUDY

Cognitive Neuroscience Research & AI Center gets to manage GPU resources and speed up work with an AI Platform.

### OBJECTIVES

- A simple & effective AI Platform
- Dramatically improve current GPUs' utilization.
- Run many workloads on a GPU simultaneously.
- Allocate resources dynamically.
- Manage resources and schedule workloads automatically.



"XPU and OpenPAI combination is our lifesaver!

Two powerhouses combined gave us a simple and user-friendly AI platform that greatly simplifies management, democratizes access to GPU resources, and significantly utilizes our GPUs."

### DR. JUN LIEU

Chief Scientist at Beijing Cognitive Neuroscience Research & AI Center

### CHALLENGES

Beijing cognitive neuroscience research & AI center combines the study of brain and cognitive science and artificial intelligence to solve a broad range of problems. It does so by developing AI models to analyze big data in neuroscience.

Lacking an effective AI infrastructure can be costly, and because of that, the Center has been struggling with very low productivity; teams can't access resources when they want to, results take "forever" to produce, and they even had to manage an Excel spreadsheet to track who gets to use the GPUs next...

As Dr. Lieu puts it: "As researchers, our goal is to make breakthroughs in scientific studies, not to develop or deal with IT. We want something that simply does what we want - submit jobs, see the results, and tune the parameters, that's it."

### SOLUTIONS

The Research Center's challenges share among many organizations and research institutions. There is no easy-to-use AI platform to help them run the jobs effectively and manage the computing resources automatically.

XPU integrated with an open AI platform developed by Microsoft - OpenPAI, and met the challenges.

rn for AI

#### Platform for AI

Platform for AI is an open source platform that provides complete AI model training and resource management capabilities, it is easy to extend and supports on-premise, cloud and hybrid environments in various scale.

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#### Submit a hello-world job

With submitting a hello-world job, this section introduces more knowledge about job, so that you can write your own job configuration easily.

[Learn more >](#)

#### Understand Job

The job of OpenPAI defines how to execute command(s) in specified environment(s). A job can be model training, other kinds of commands, or distributed on multiple servers.

[Learn more >](#)

#### Use VS Code Extension

OpenPAI Client is a VS Code extension to connect PAI clusters, submit AI jobs, and manage files on HDFS, etc. You need to install the extension in VS code before using it.

[Learn more >](#)



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First, OpenPAI provides a simple and user-friendly interface; you can remotely login from anywhere and submit your jobs.

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**Select your job type**



Config Editor



Single Job



Distributed Job

Next, submitting jobs is only a click away; you can choose either "Single Job" or "Distributed Job" you want to run.

You can then choose a complete suite of options, including selecting a Docker image, specifying computing resources, and many more.

**Template Selection**

Select a saved template

**Job name**

**Virtual cluster**

**Resources**

SKU Count:

SKU vGPU Size:

SKU Type:

**Docker image**

**Parameters**

You could reference these parameters in command by `<${parameters.parameterKey}>`.

Key	Value

**Secrets**

**PAI environment variables**

**Data**

**Tools**



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XPU redefined how GPU resources are accessed by integrating impeccably with OpenPAI; when you select the computing resources, you can choose only a portion of the GPU for the job. XPU takes care of the "splitting - virtualization" for them automatically, dynamically, and on demand. GPU is fully utilized in this fashion, and resource scheduling is automatically handled by OpenPAI's powerful "HiveD" scheduler; you don't have to worry about anything.

Resources  SKU Count

SKU vGPU Size                                  <img alt="Up arrow icon" data-bbox