User Interaction

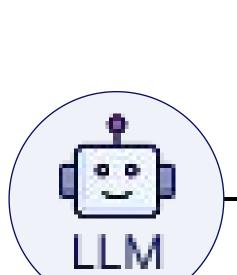**My ORCID ID is 0000-0002-1825-0097. How can we improve the energy efficiency of AI models?**

Ideas with their ranking based on your previous work and similar papers.

Rank-1: Investigate the integration of dynamic precision scaling with structured sparsity to optimize energy efficiency in large-scale AI models.
Rank-2: ....
Rank-N:.........

Please incorporate Group Relative Policy Optimization with "Investigate the integration of dynamic precision scaling with structured sparsity"
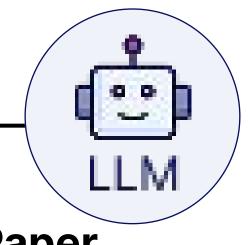
According to your requirement, final idea:

Optimize energy efficiency and training stability in large-scale AI models.

SCI-IDEA Interaction

LLM

→ **Paper collection**

→ **Facet generation**

→ **Identify research gap**

→ **Idea generation & ranking**

Search

→ **Researcher paper titles retrieval** : "Sparse Neural Networks for Energy-Efficient Inference", "Knowledge graphs and LLMs", "Dynamic Sparsity for Efficient Deep Learning"

→ **Key phrase extraction from user prompt**: sparsity, energy efficiency, AI optimization

→ **Key phrase related researcher paper titles**: "Sparse Neural Networks for Energy-Efficient Inference", "Dynamic Sparsity for Efficient Deep Learning"

→ **Key phrase related similar paper titles retrieval**:
-Energy-Efficient Deep Learning via Dynamic Precision Scaling
-Sparse Training Techniques for Neural Networks

→ **Researcher papers**:
-Sparse Neural Networks for Energy-Efficient Inference:"......"
-Dynamic Sparsity for Efficient Deep Learning:"........."

→ **Similar papers**:
-Energy-Efficient Deep Learning via Dynamic Precision Scaling:"........."
-Sparse Training Techniques for Neural Networks: "........."

Generate

→ **Researcher paper facets:**
-Sparse Neural Networks for Energy-Efficient Inference: Facet1, Facet2, Facet3, Facet4
-Dynamic Sparsity for Efficient Deep Learning: Facet1, Facet2, Facet3, Facet4

→ **Similar paper facets:**
-Energy-Efficient Deep Learning via Dynamic Precision Scaling: Facet1, Facet2, Facet3, Facet4
-Sparse Training Techniques for Neural Networks: Facet1, Facet2, Facet3, Facet4

→ **Research gap from researcher paper facet:**
-Combining sparsity with dynamic precision scaling
-Scalability to large-scale models

→ **Idea generation & ranking**
Idea-1: Investigate the integration of dynamic precision scaling with structured sparsity to optimize energy efficiency in large-scale AI models.
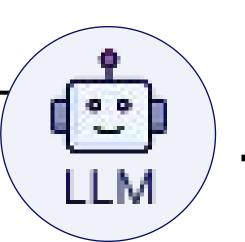Idea-2: ....
Idea-N:.........
Novelty threshold,θ_n= 0.7, Surprise threshold,θ_s = 2.0.
θ_n, θ_s< Idea-1, Idea-2.......Idea-N
Ranking: Idea-1,.......Idea-N

→ **Update ideas**

Update

→ **Update idea according to query**: Optimize energy efficiency and training stability in large-scale AI models.