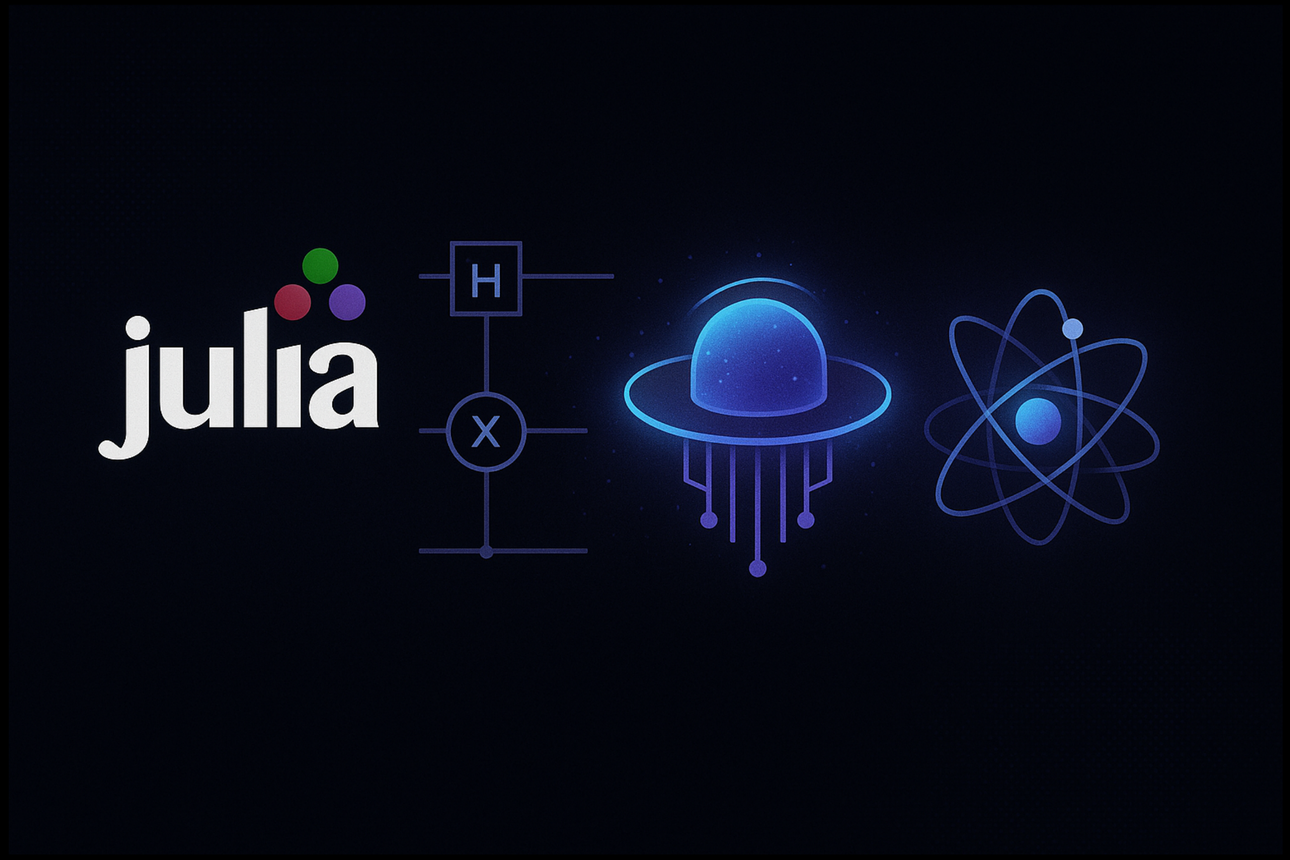
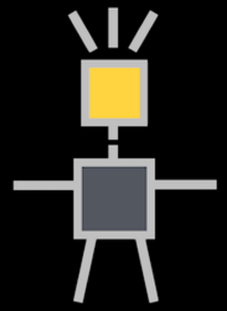
What Can Julia Do for Quantum Simulations (and What Can’t It)?



Patrick Diehl (11/20/2026)

What can Julia do: Tensor networks

A **tensor network** is a structured way of representing a very large quantum state by breaking it into **smaller, connected tensors**.



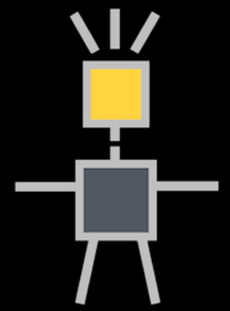
itensor.jl

cuda.jl / amd.jl

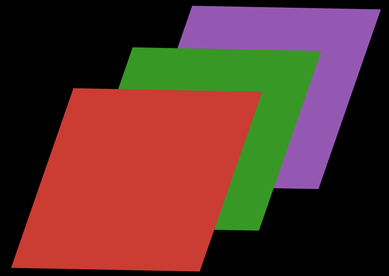
What Julia can not do yet:

- Performance portability
- Checkpointing
- Distributed runs

Upgrade?



itensor.jl



mpi.jl