QuEra

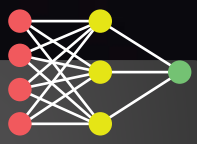
The Best Way to Quantum

QuEra is the leader in neutral-atom quantum computing. Based in Boston and built on pioneering research from nearby Harvard University and MIT, QuEra operates the world's largest publicly accessible quantum computer.

Highlights:

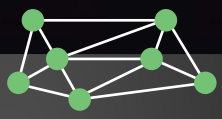
- We built and are operating the world's first and only publicly-accessible quantum computer based on neutral atoms.
- Dozens of organizations already use our quantum computer on a regular basis.
- We have a clear path to the "holy grail" of quantum computing: a large-scale, error-corrected device.
- We productize innovations from QuEra and our MIT/Harvard collaborators at record speed.
- Based in Boston, we assembled a world-class team of nearly 50 scientists and engineers.

Key applications enabled by our quantum computer:



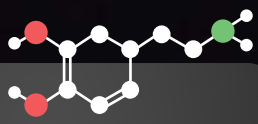
Machine Learning

- Classification
- Regression and prediction
- Reservoir computing



Optimization

- Maximum independent set
- QUBO
- Graph coloring
- Maximum clique



Simulation

- Equilibrium quantum phases of matter
- Non-equilibrium quantum dynamics
- Quantum thermalization
- Lattice gauge theories

Working with QuEra:

Solutions

- World-class experts
- Unique algorithms
- An approach that overcomes many of the issues with gate-based machines

Premium Access

- Secure remote access to a machine
- Business service-level agreements
- Expert support
- Shared or dedicated machine time

Machine Sales

- Lease a QuEra computer
- On-site installation and support
- Perfect for integration with HPC centers

Our products:
Aquila: our 256-qubit machine on Amazon Braket

Quantum power
- 256 entangled neutral-atom qubits
- Coherence throughout the computation

Architecture
- Dual-mode: analog quantum mode today, universal gate-based mode later
- Field programmable qubit arrays

Bloqade: a high-performance testbed for neutral-atom algorithms:

Powerful and flexible
Native encoding of neutral-atom quantum features such as Rydberg-blockaded Hilbert spaces, flexible geometries, and continuous time control.

Exceptionally efficient
Supports GPU acceleration and multithreading. Deployable on clusters. Python and Julia interface. High-performance emulation.

From design to neutral atom quantum execution
The best way to develop, deploy, and execute code on Amazon Braket.

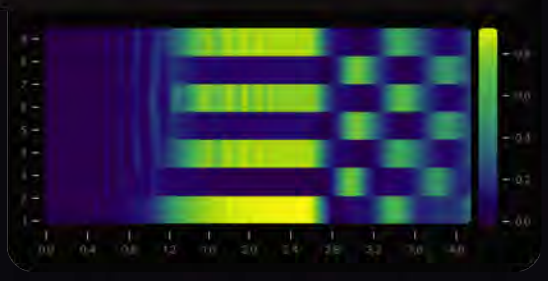
Quera

Plotting the Results

We first plot the Rydberg density for each site as a function of time:

```
clocks = 0:1e-3:total_time
D = hcat(densities...)

fig, ax = plt.subplots(figsize = (10, 4))
shw = ax.imshow(real(D), interpolation = "nearest", aspect =
"auto", extent = [0, total_time, 0.5, nsites + 0.5])
ax.set_xlabel("time (μs)")
ax.set_ylabel("site")
ax.set_xticks(0:0.4:total_time)
ax.set_yticks(1:nsites)
bar = fig.colorbar(shw)
fig
```



Quantum computers are projected to revolutionize and disrupt many areas of business. If you want to get a head start on your competition and see what quantum can do for you, contact us today.

QuEra

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