ThermoFisher
SCIENTIFIC

Reinforcement learning for electron microscope alignment

Mykola Kaplenko

The world leader in serving science

- **RL Soft Actor Critic**:

Time:

10 - 15 seconds

(4 - 6 aperture movements)

Success rate: 100 %

Precision:

Image shift less than 3 px

- **Engineer manual alignment**:

Time:

30 - 120 seconds

(more than 15 aperture movements)

Success rate: 100 %

Precision:

Image shift less than 3 px

- **User manual alignment**:

Time:

2 - 10 minutes

(more than 50 aperture movements)

Success rate: 75 %

Precision:

Image shift less than 5 px

- **SAC training**: 60.000 aperture movements (8 hours)