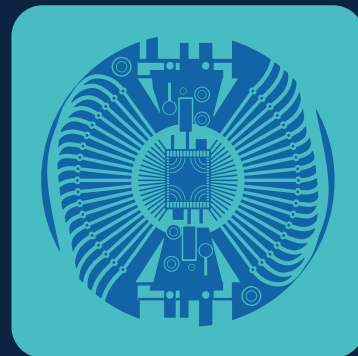
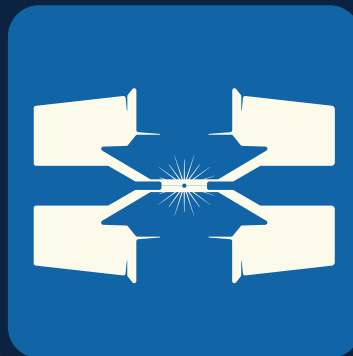


Entropica
Labs



Loom design

The QEC Lab





Loom design

Surface code logical preparation of $|\Phi^+\rangle = \frac{1}{\sqrt{2}}(|00\rangle + |11\rangle)$ via lattice surgery



<https://entwine.entropicalabs.io/>



Entwine + Loom

Design - Fine Tune - Analyse

- **Circuits:** export to stim, cudaq, pennylane/catalyst, mimiq, qasm;
- **Lattice surgery:** surface code \rightarrow all clifford gates (+ T-gates end '25)
- **BYO-Code:** define stabilisers, schedules, classical control routines, logical gates
- **Decoder design:** via cudaq/catalyst



User Stories

- **Qldpc & HPG codes** memory experiments with custom noise models
- **T-factory design via lattice surgery**
- **Learning tool:** use Loom design for graduate courses



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