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AutoAL: Automated Active Learning with Differentiable Query Strategy Search

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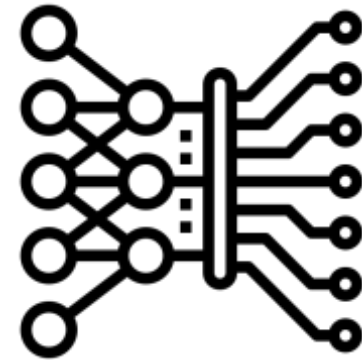
Background



Human Annotators



Data



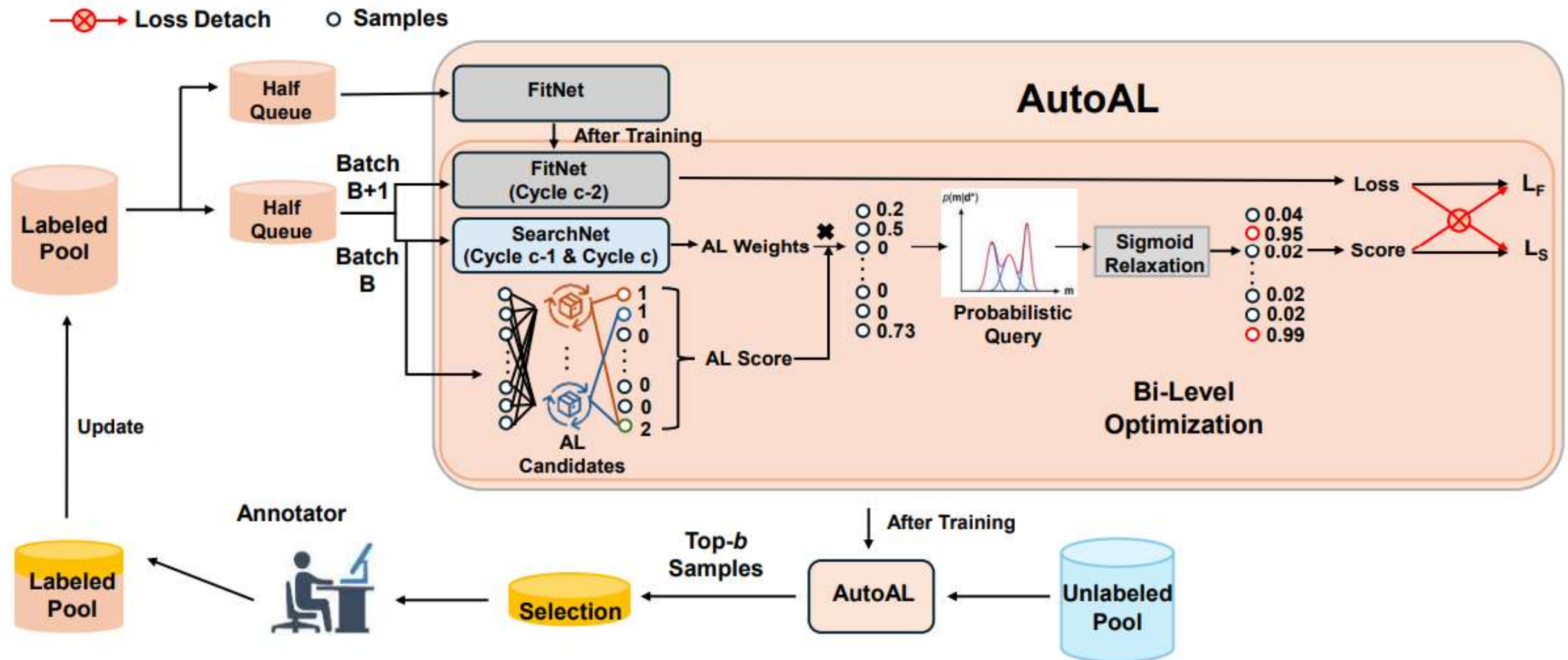
Deep Learning
Models

Challenges

- 01 The effectiveness of different active learning algorithms can vary significantly across data scenarios.
- 02 It is hard to determine which active learning algorithm best fits a given task automatically.
- 03 Existing active learning selection works have two disadvantages: high computational cost and hard to optimize.

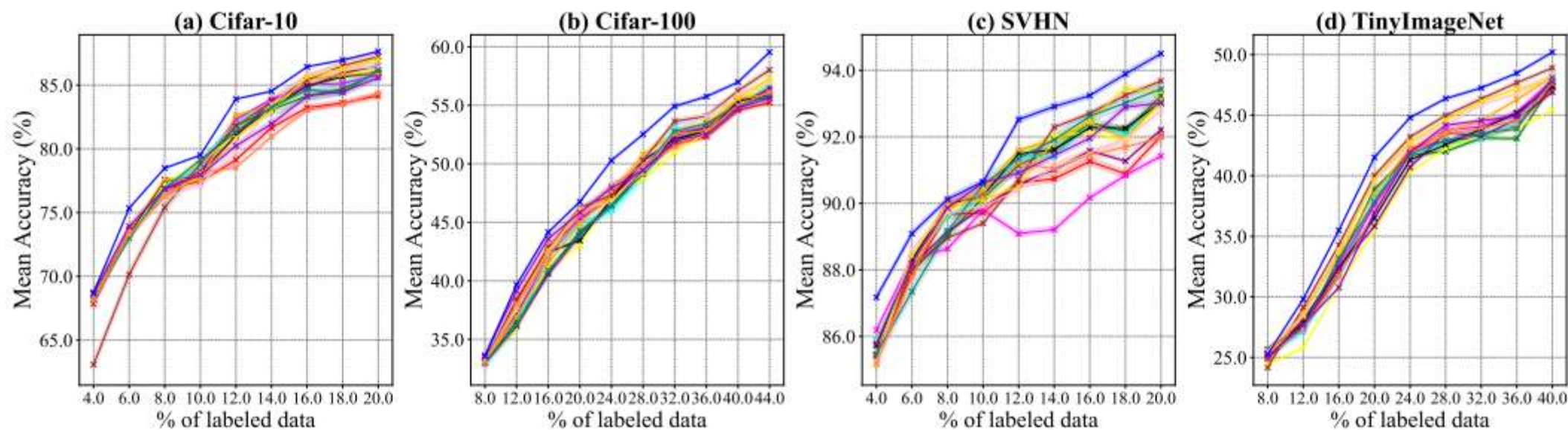
Approach

The first **automatic** active learning query strategy search algorithm that can be trained in a **differentiable** way.



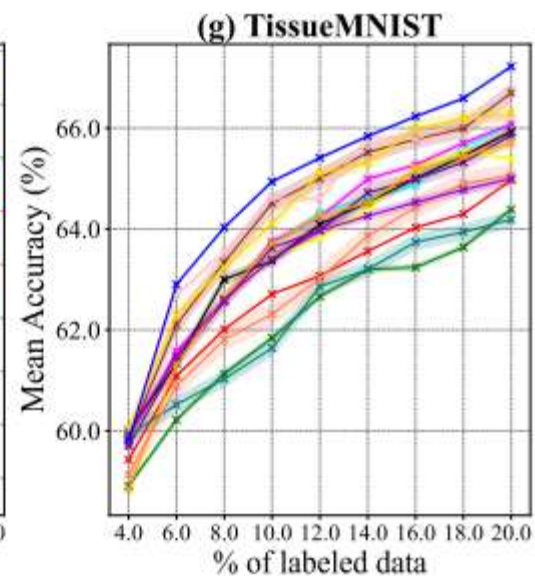
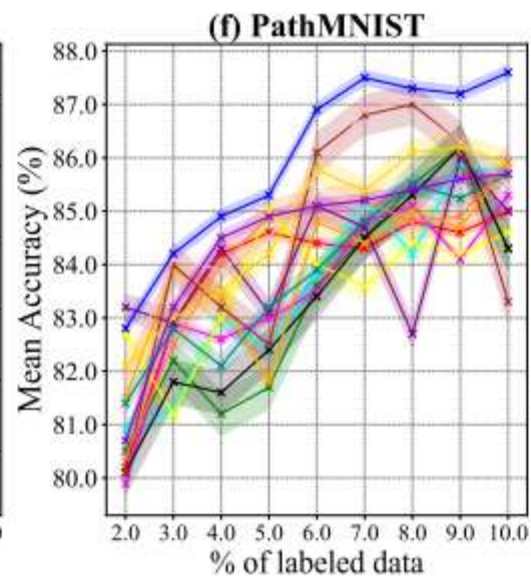
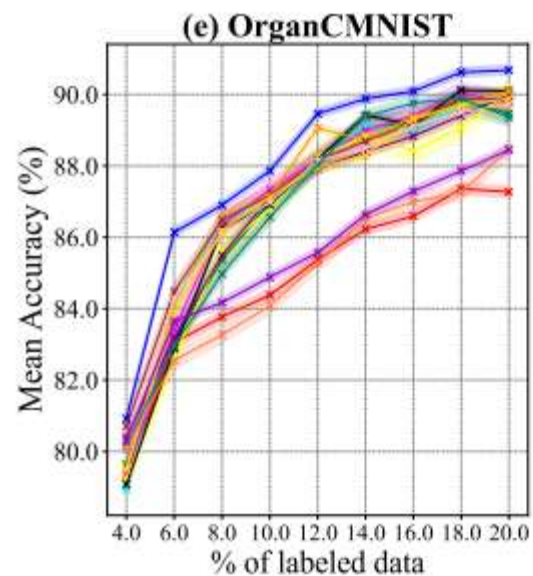
Results

Nature Images



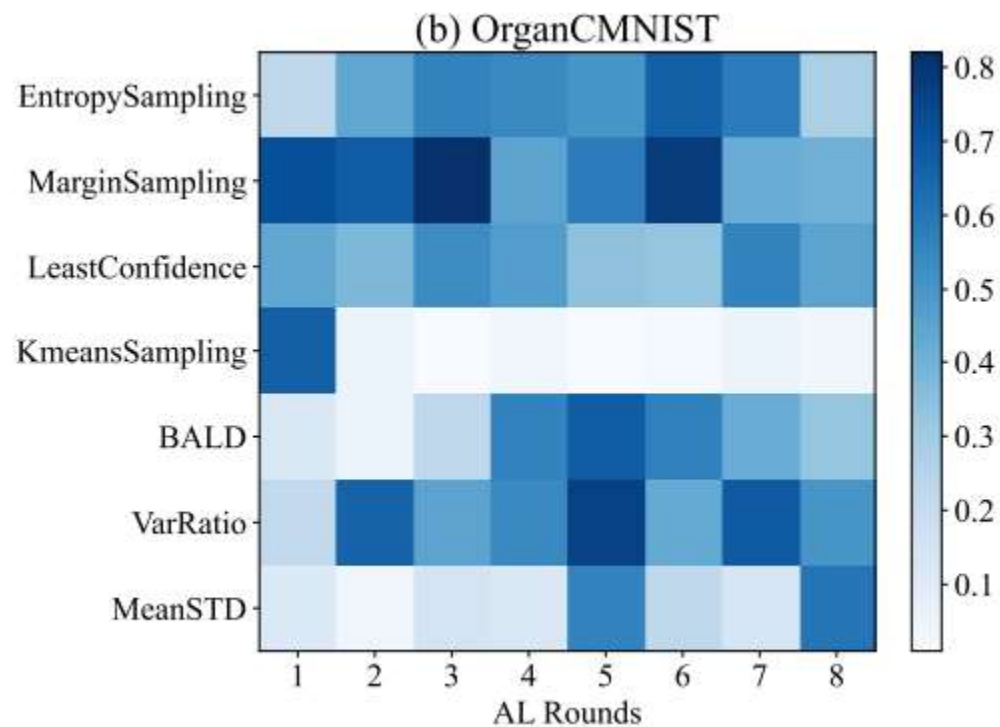
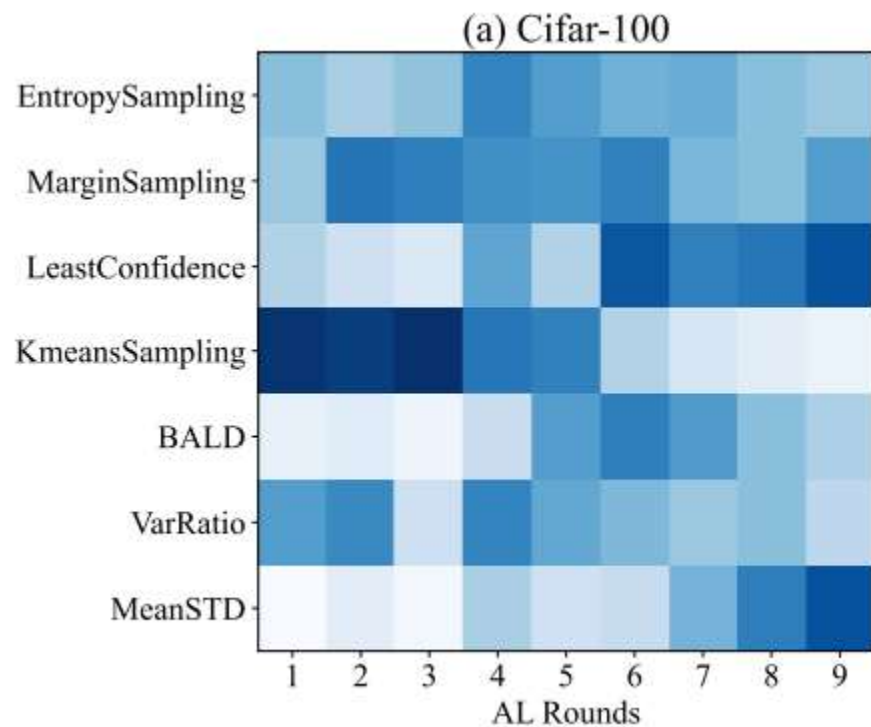
Results

Medical Images



Results

AL strategy scores across AL rounds



Thanks!

See you in Vancouver.



Paper



Code