

AUTOMATED TONGUE IMAGE ANALYSIS

CHRONIC GASTRITIS

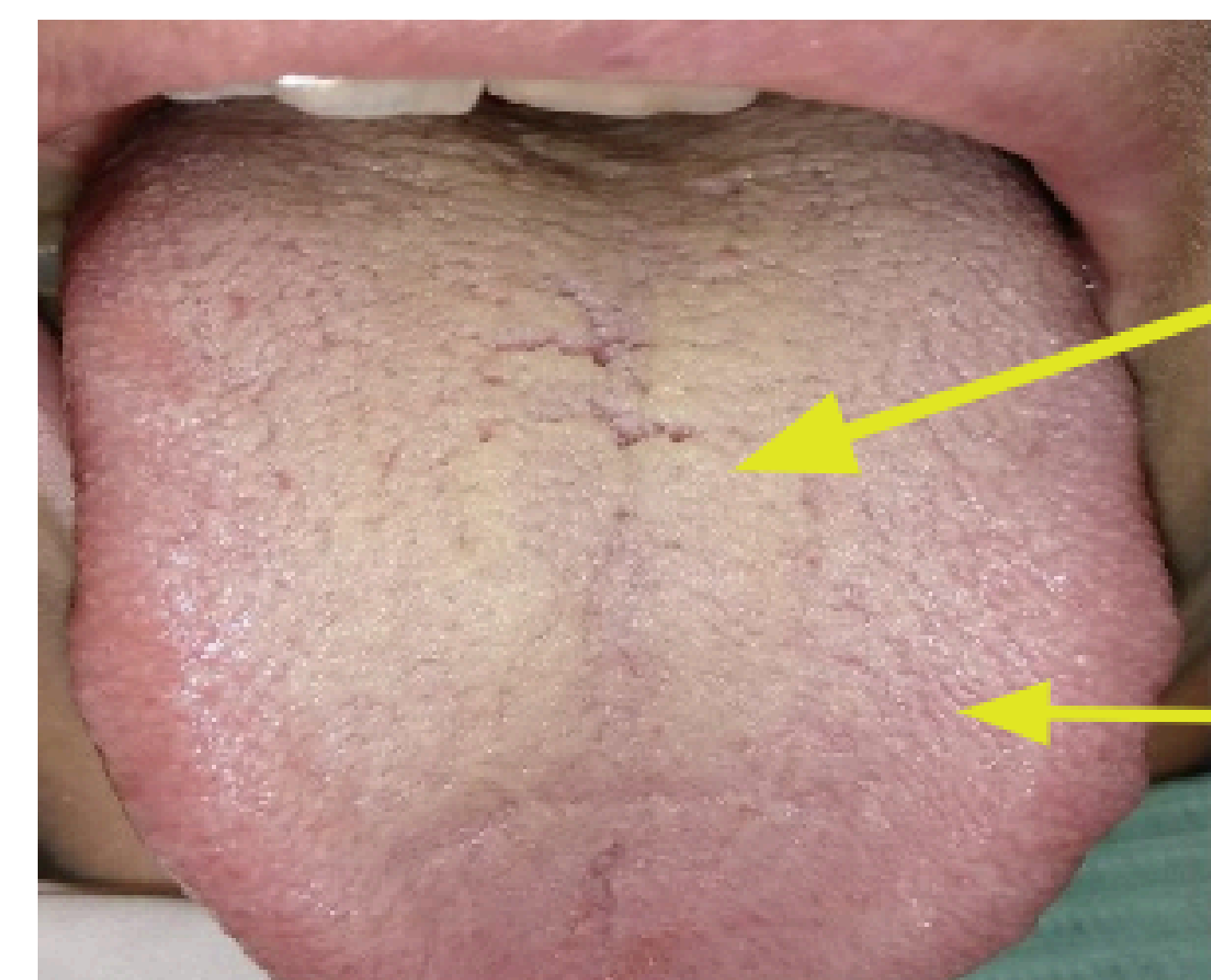
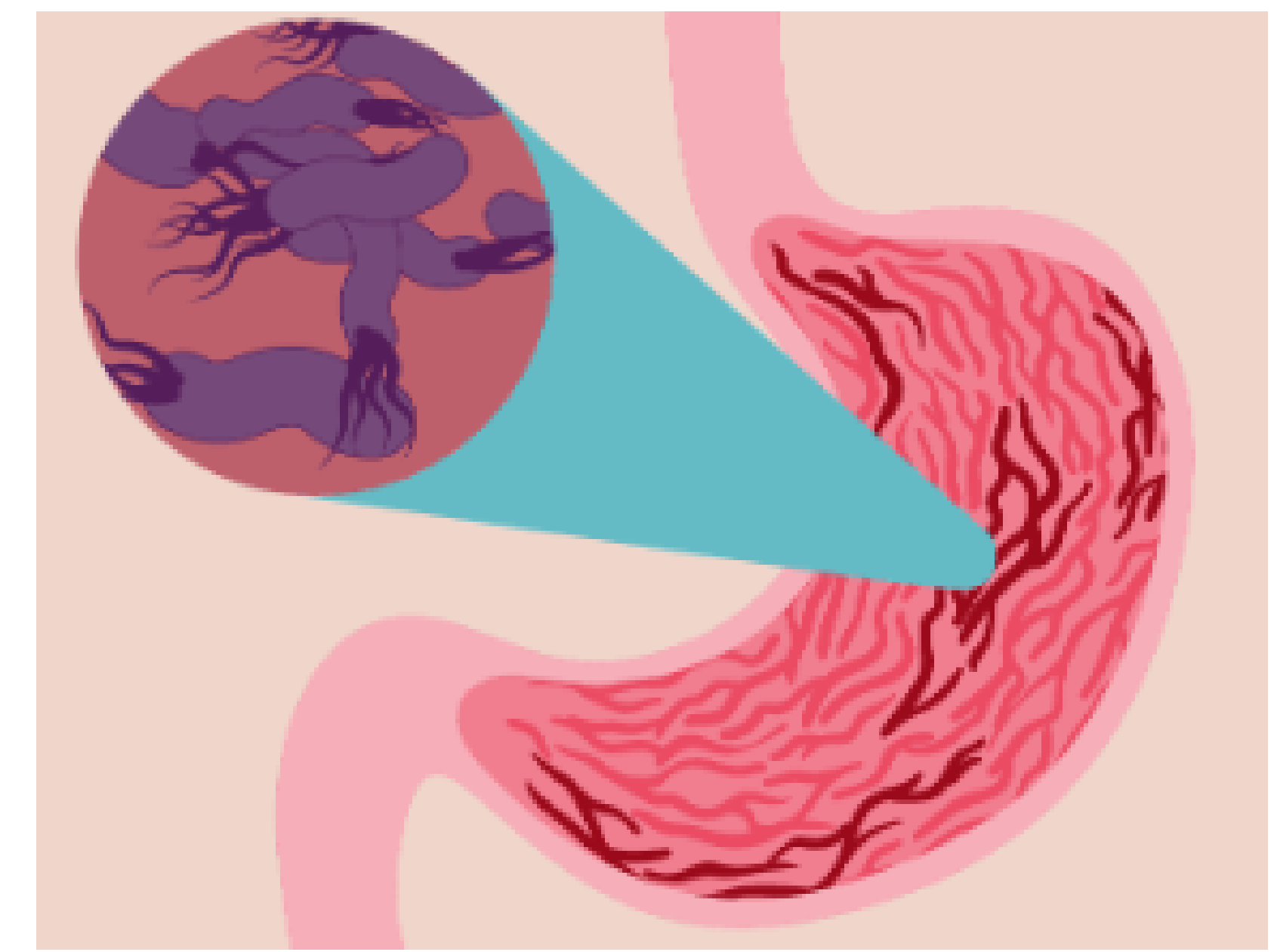
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Autoimmune disease affects the stomach's inner lining (mucosa).

Symptoms: Abdominal pain, indigestion, bloating, nausea, ulcers.

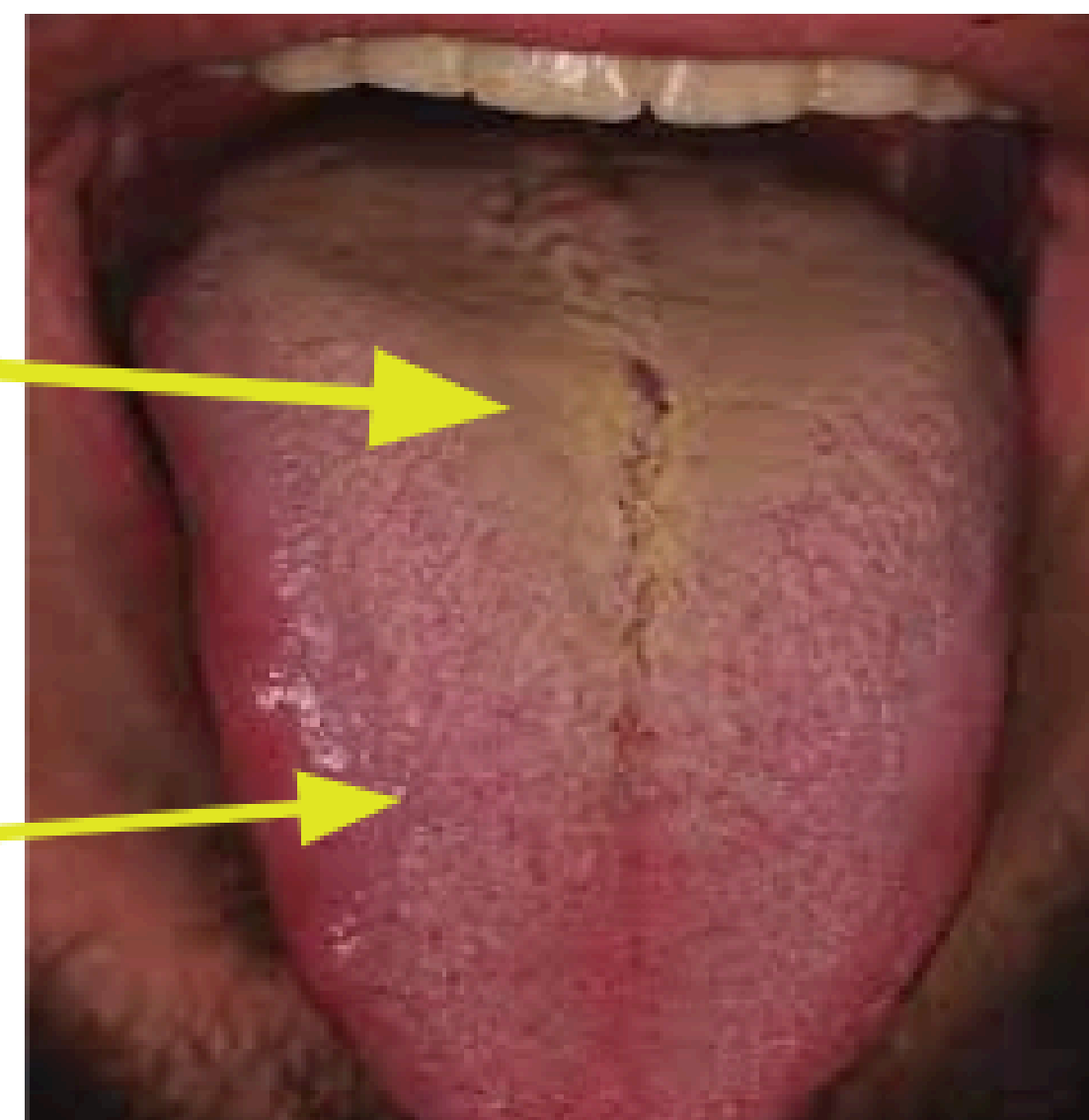
Traditional diagnosis methods: EGD, blood test, urea breath test

Chronic gastritis shows visual symptoms on the tongue!



Yellow pigmentation

Translucent coating



Bottleneck in healthcare workers

TCM is outdated and not reliable

Why?

Healthcare needs support

Doctors need to focus on erratic data rather than repeatable tasks

Traditional methods (ex: EGD, Blood test) are **invasive** and **time consuming**

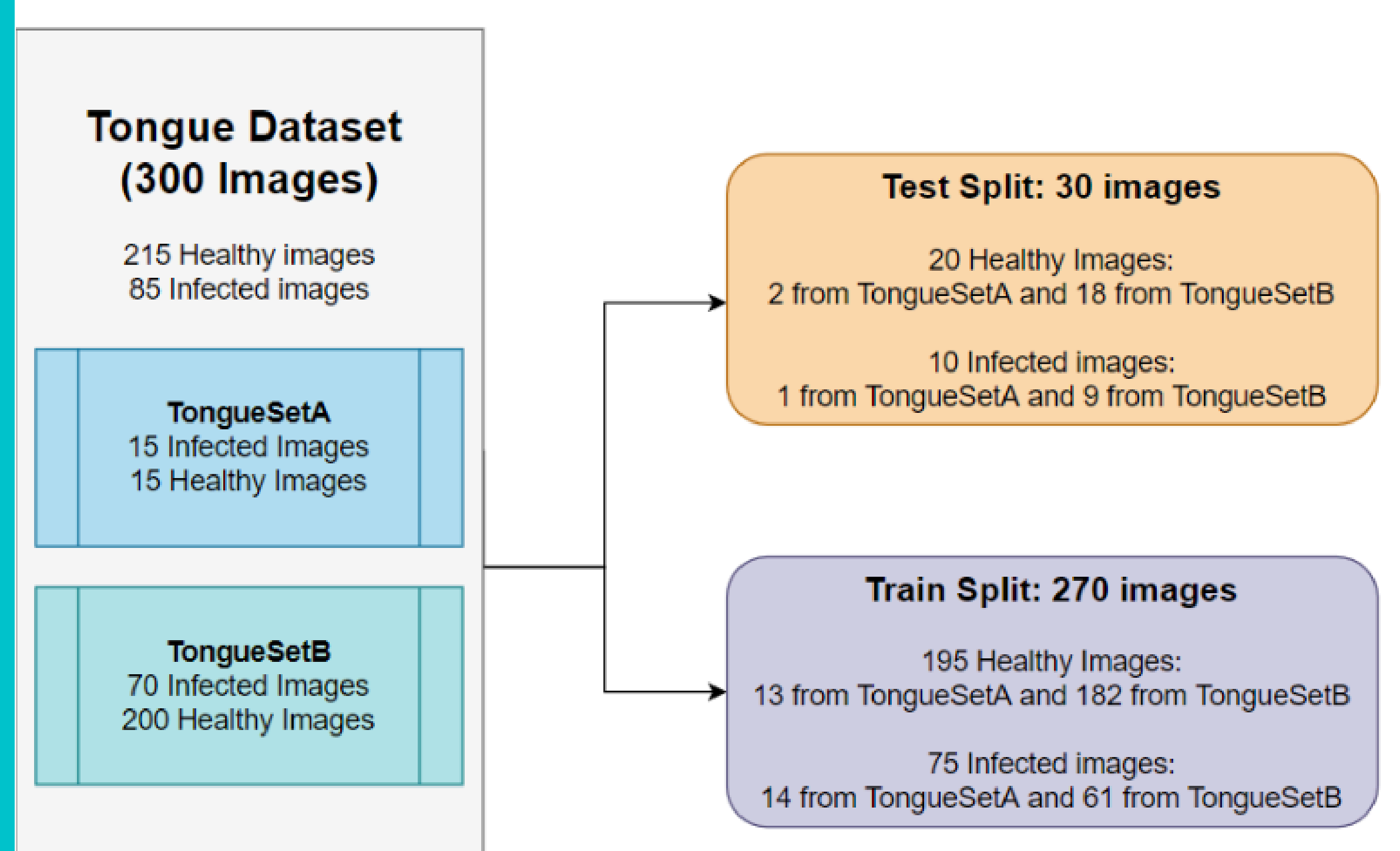
CAN WE BUILD AN **AI DIAGNOSTIC ASSISTANT** THAT CAN ACCURATELY PRODUCE A **DIAGNOSIS** FOR AUTOIMMUNE DISEASES BY **ATIA**?



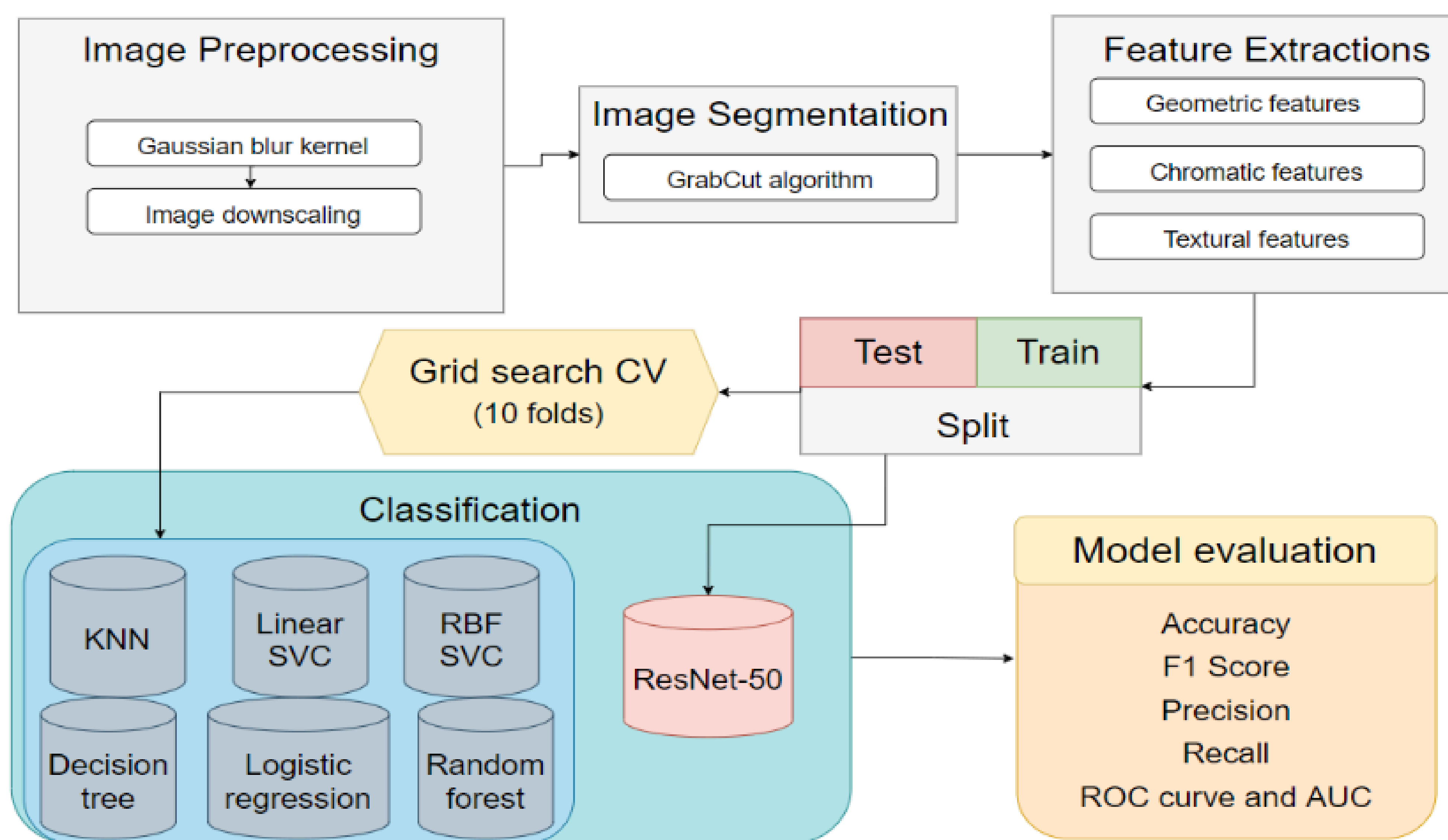
SCAN ME

DATASET DESCRIPTION

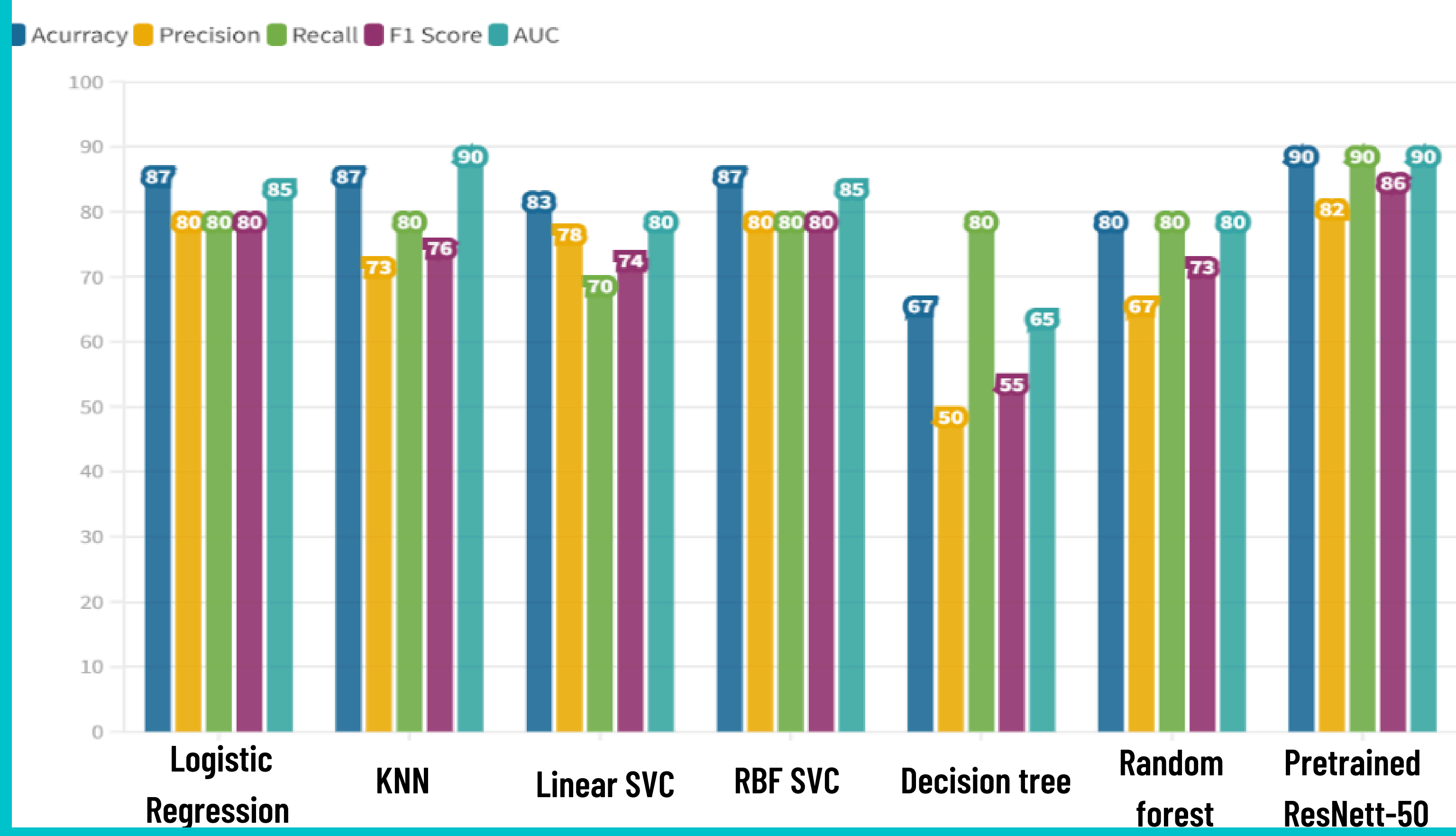
- Binary classification on **300** tongue images
- **6** Supervised ML models & **1** deep neural network
- Fine-tuned hyperparameters using **grid search CV**
- Evaluated each model and did a comparative study



METHODOLOGY:



COMPARATIVE STUDY RESULTS



BEST PERFORMING MODEL: RESNET-50

- CNN with **48** convolutional layers and **2** pooling layers.
- Highest avg **accuracy** of 90% and **recall** of 90%.
- Used the **ADAM** optimizer, **BCE** loss function and trained over **100** epochs

