# Advancing Assessment Practices in CS Education through AI-Generated Visual Test Cases

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## Background

- Recent AI models produce high-quality images from prompts or references.
- SOTA vision models achieve near-ceiling performance on many public datasets, risking pedagogical redundancy when coursework replicates them.
- Promising HE practices in using generative AI in educational assessments.

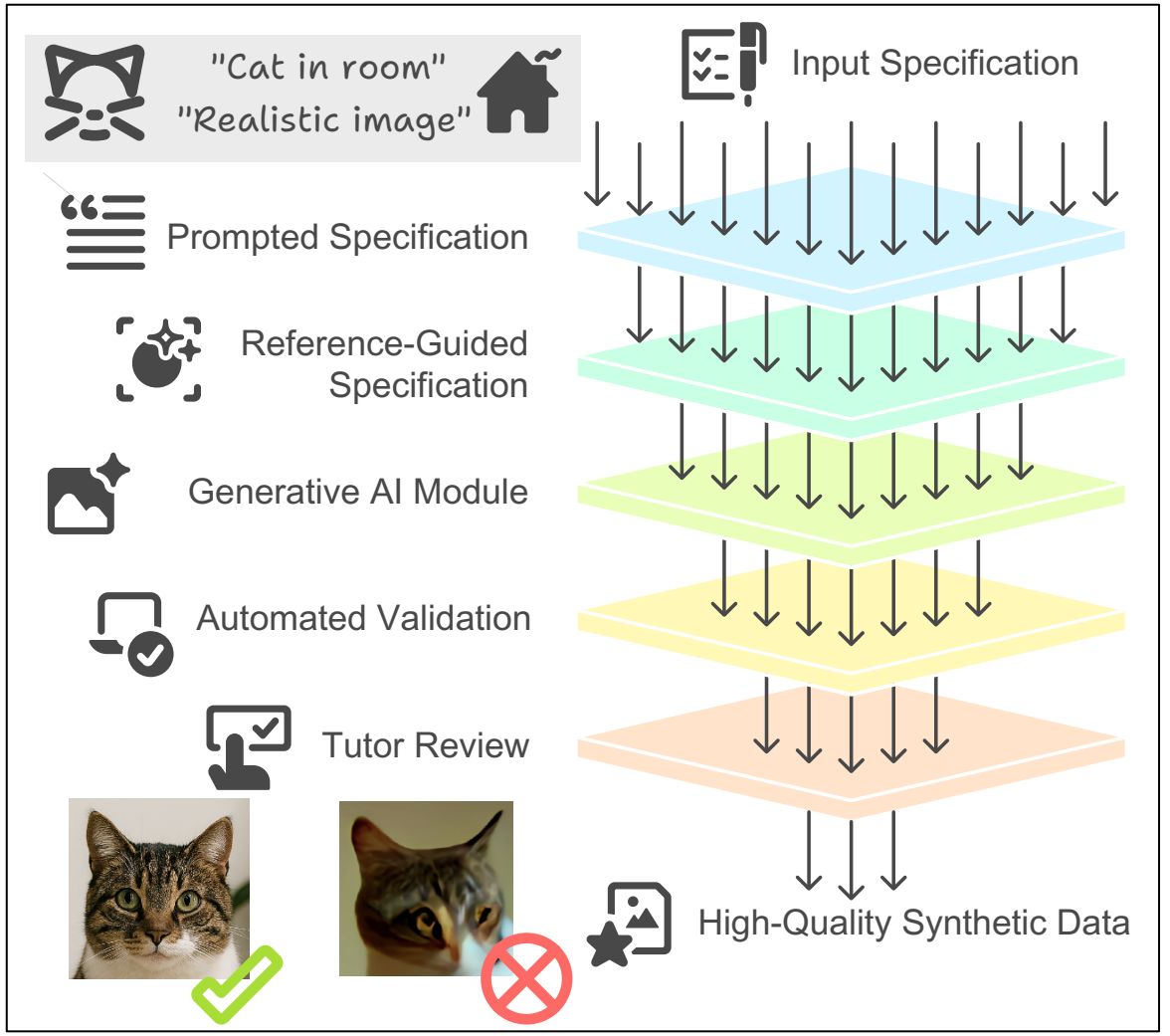
## Idea

Three-stage framework for generating visual test cases for AI-based coursework evaluation:

1. Input specification
2. Diffusion-based generation
3. Automated validation and human-in-the-loop verification.

## Case Studies

- Classification: generated image must clearly represent the target object category and be correctly classified by standard image classification models such as ResNet.
- Detection: synthetic image is assessed using object detection models, including YOLO to ensure accurate localization of the target object within bounding boxes.

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