Transcription of handwritten annotations on slide frames

This master's thesis aims to develop and evaluate a machine learning-based handwriting recognition (HTR) system to digitize and interpret handwritten annotations on a collection of approximately 33,000 botanical slides (Dias). The slides, used for educational purposes in botanical lectures, contain valuable but manually inscribed metadata, such as species names, magnification levels, and collection details. The project will focus on one core objective: training a robust handwriting recognition model, leveraging active collaboration with the collection owner to ensure accurate transcription and interpretation of handwritten labels; Optionally, additional objectives can be followed: (a) optionally exploring scanning techniques to simultaneously capture both the slide content and its handwritten frame annotations in a single workflow; and (b) investigating automated solutions for digitizing handwritten notes in associated A6 notebooks and seed packets, which are currently transcribed manually.

Contact: Roman Kern: rkern@tugraz.at

Goals & Tasks

- Review of state-of-the-art on HTR methods, including Transformer-based approaches.
- Develop HTR methods focused on the domain of the dataset.
- Evaluate the performance of the method.
- Optionally, investigate innovative capturing techniques and procedures.

Qualifications

- Interest in OCR/HTR.
- Experience with machine learning.
- Registered to one of the following:
  - ☐ **Bachelor Thesis**
  - ☐ **Seminar Project**
  - ✓ **Master Thesis**