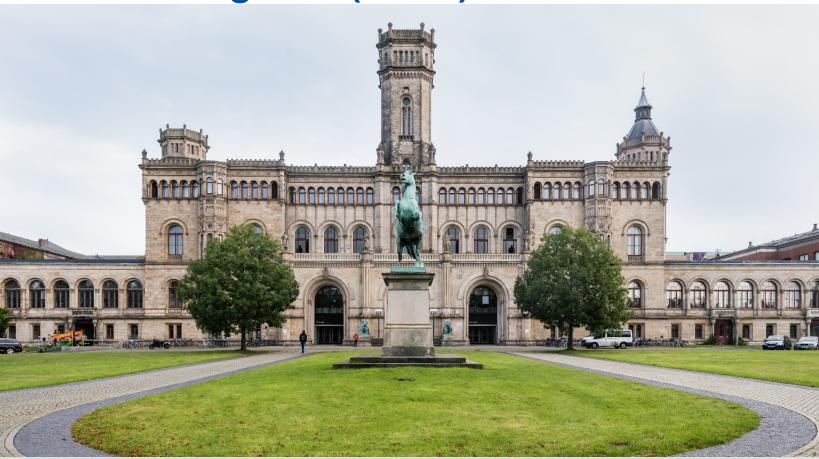
## Open-ended Learning via Models of Human Notions of Interestingness (OMNI) [Zhang et al. 2024]







## OMNI - Key Concepts [Zhang et al. 2024]

- Unsupervised CL method
- Open-ended Algorithms:
  - Aim to learn new, interesting behaviours indefinitely
  - Requires a vast environment search space
- Challenges:
  - Task Prioritization: Difficult to quantify & prioritize tasks that are learnable and interesting
- Motivation:
  - Create self-improving AI and AI-generation
  - Intelligent select new tasks that are learned
- Approach:
  - Utilize foundation models (ML-model trained on vast human-generated data = internet)
- a





## **OMNI - Methodology and Results**

- OMNI agent starts learning on appropriate level of tasks (pre-trained agent)
- Therefore tasks are sampled that show high learning progress
  - Success is evaluated periodically
- Bidirectional Learning Progress:
  - Tasks are weighted on recent improvement and degrading ability (forgetting)
- Normalization and Sampling:
  - Normalize Success rates
  - by comparison to random policy
- Model of Interestingness:
- Few-shot learning & Prompts of FMs
- Novelty, Worthwhile, Learning progress

