IM354: Generative AI: Histories, Techniques, Cultures, and Impacts

UNIVERSITY OF WARWICK

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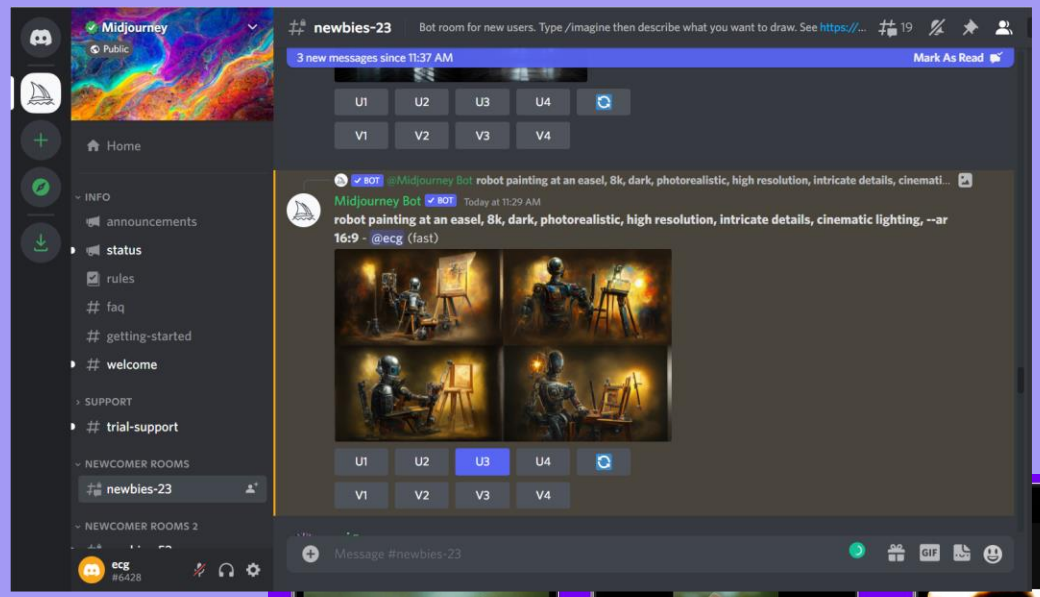

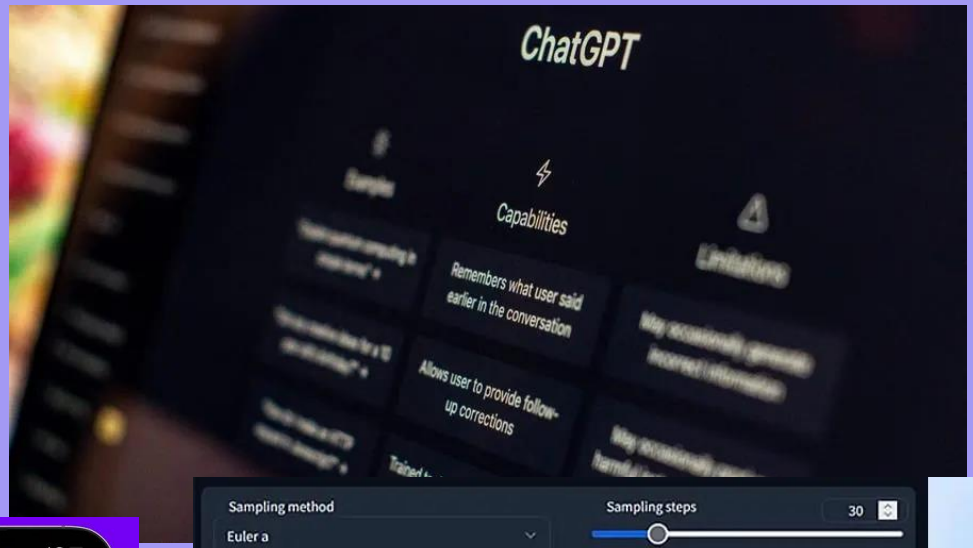

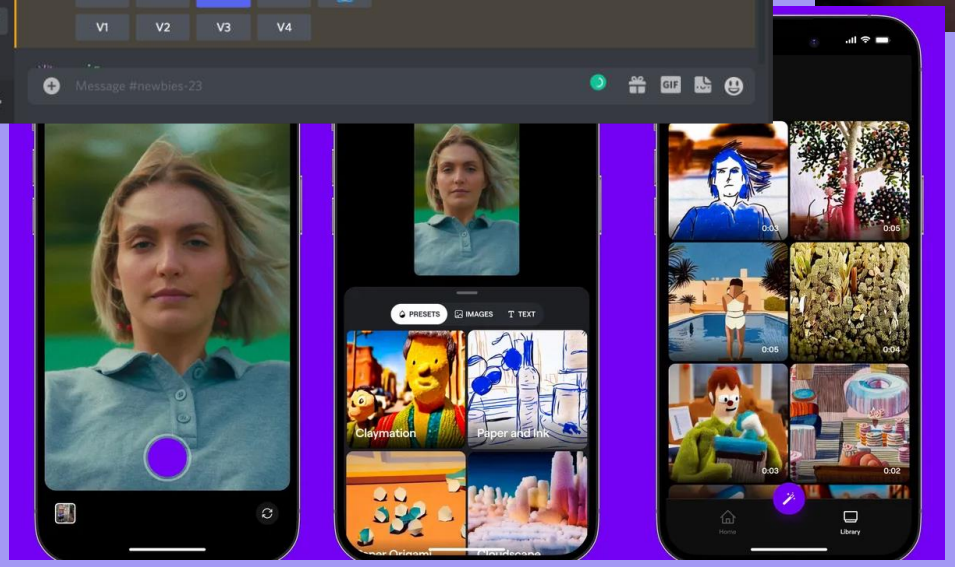

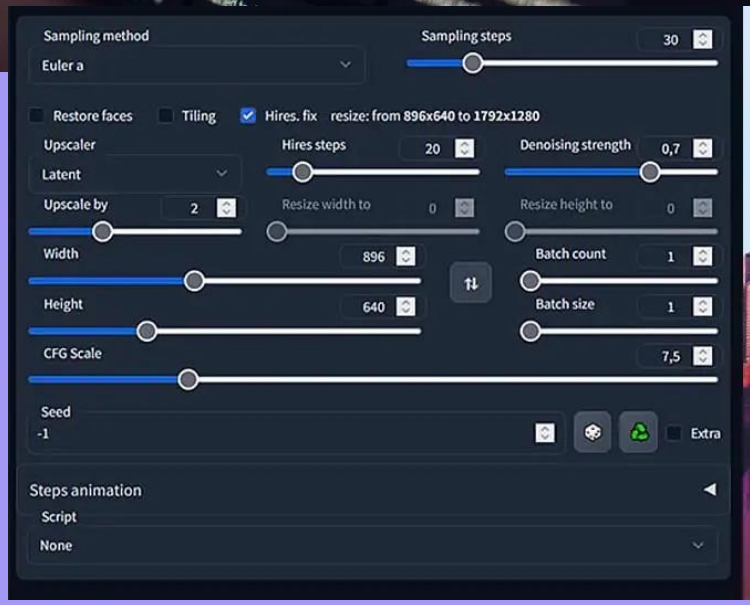

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Overview

> In this module, students gain both conceptual and methodological knowledge and practical experience of the theoretical, technological, and social aspects of generative systems and models for images, text, and signal forms, with a specific focus on those using contemporary artificial intelligence (AI) techniques. The module will enable students to develop general knowledge of the past, present, and potential future impacts of such systems at cultural, political, social, and philosophical levels. While there are no mathematical or programming prerequisites, the module provides opportunities to gain hands-on experience with generative AI models, both as an end-user and at the level of the beginner, open-source hobbyist. Students will also learn to address, debate, and explain present-day generative AI controversies through a group media analysis and presentation. The overall module aim is to enable students to be better equipped to engage and intervene in a world in which these technologies are the subject of intense debate as well as being increasingly embedded in everyday life.

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Learning Outcomes

- Demonstrate in-depth knowledge of the conceptual foundations, cultural background, and historical impacts of generative systems for various forms of image/text/signal media
- Demonstrate a critical understanding of the assumptions and present-day limitations of contemporary generative artificial intelligence (AI) models
- Demonstrate a practical ability to interact with these systems in a hands-on and exploratory manner to help answer questions about generative AI
- Demonstrate an appreciation and deeper understanding of the social, ethical, cultural, and philosophical implications and impacts of recent developments in generative AI
- Demonstrate skill in analysis and interpretation of various media content around subjects in generative AI

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Weekly Topics

- Mechanical Production and Reproduction: Introduction to the Module plus a History of Generative Art, Language, and Music to the 1950s.
- From ELIZA to AARON: A History of Generative Art, Language and Music, Part II: 1950s—2000s.
- Artificial Neural Networks from the Perceptron to the Deep Learning Era.
- Early Neurography: The ImageNet Dataset, Convolutional Neural Networks, and Creative AI.
- Signals, Music, and Text: Wavenet, Jukebox, and Generative Pre-trained Transformers (GPTs).
- Presentation and Discussion Week for Generative AI Controversies.
- Multimodal Neurography: Text-to-Image Models (DALL-E, StableDiffusion).
- Instruction Tuning, Human Feedback, and the Dialogical Transformer: Deconstructing ChatGPT.
- Multimodal Dialogical Models: Consequences and Futures for Politics, Education, and Culture.

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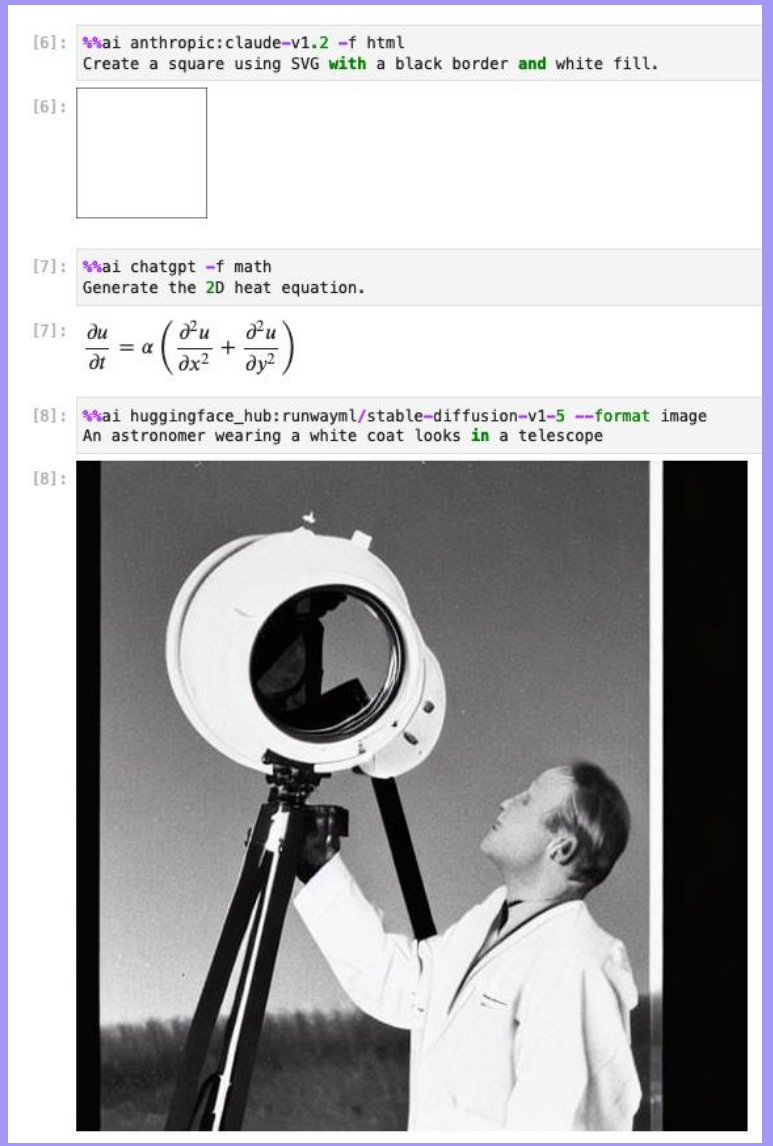
Seminars and Labs

- Weekly seminars to discuss and debate current controversies in Generative AI in research, media, politics, law, and arts domains
- Weekly labs to help interactively understand the model architectures and their powers/limitations



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Assessments

15 CATS:

- Group Presentation (35%)
- Essay (1750 words) (65%)

30 CATS:

- Group Presentation (25%)
- Essay (3000 words) (75%)