

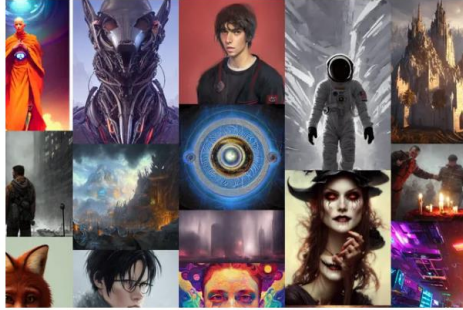
# Are artists out of a job?

Datathon 2023

Team: Curse of Dimensionality

Team members: Amar Music, Sarah Schrevens, Stef Herregods, Vancesca Dinh

## AI art tools Stable Diffusion and Midjourney targeted with copyright lawsuit



A collage of AI-generated images created using Stable Diffusion. Image: [The Verge via Lexico](#)

/ The suit claims generative AI art tools violate copyright law by scraping artists' work from the web without their consent.

By **JAMES VINCENT**  
Jan 16, 2023, 12:26 PM GMT+1 | □



## *This Tool Could Protect Artists From A.I.-Generated Art That Steals Their Style*

Artists want to be able to post their work online without the fear “of feeding this monster” that could replace them.



By **Kashmir Hill**

Published Feb. 13, 2023 Updated Feb. 17, 2023

## Viral Instagram photographer has a confession: His photos are AI-generated

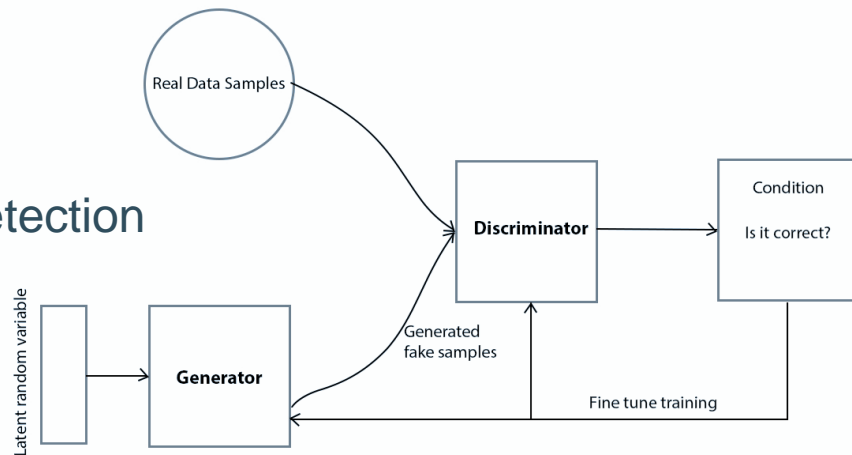
Artist wants to "come clean" and highlight a new media process.

**BENJ EDWARDS** - 2/21/2023, 1:30 PM

# AI Image Generation

- GANs

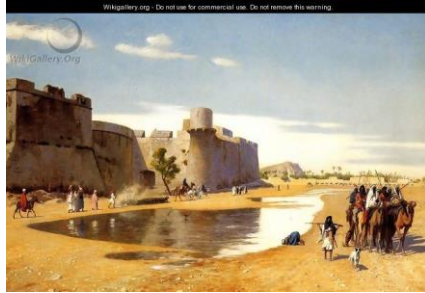
<https://github.com/grip-unina/GANimageDetection>



- Diffusion Models

<https://stability.ai/blog/stable-diffusion-public-release>

# Preprocessing



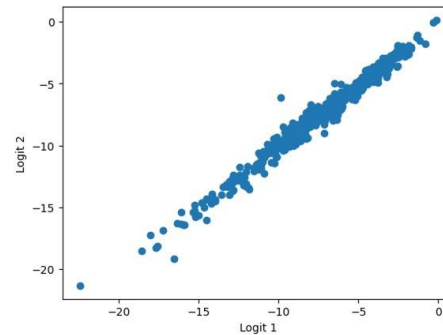
border removal



(analysis done on this level)

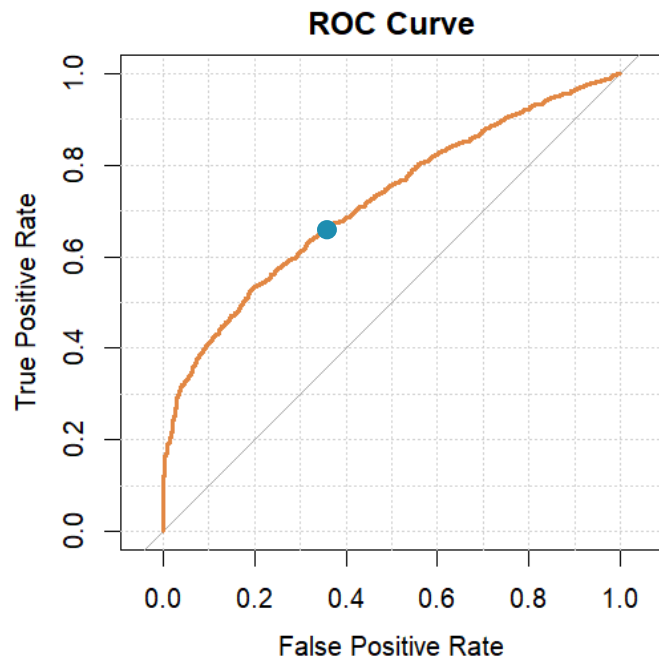


watermark cropping



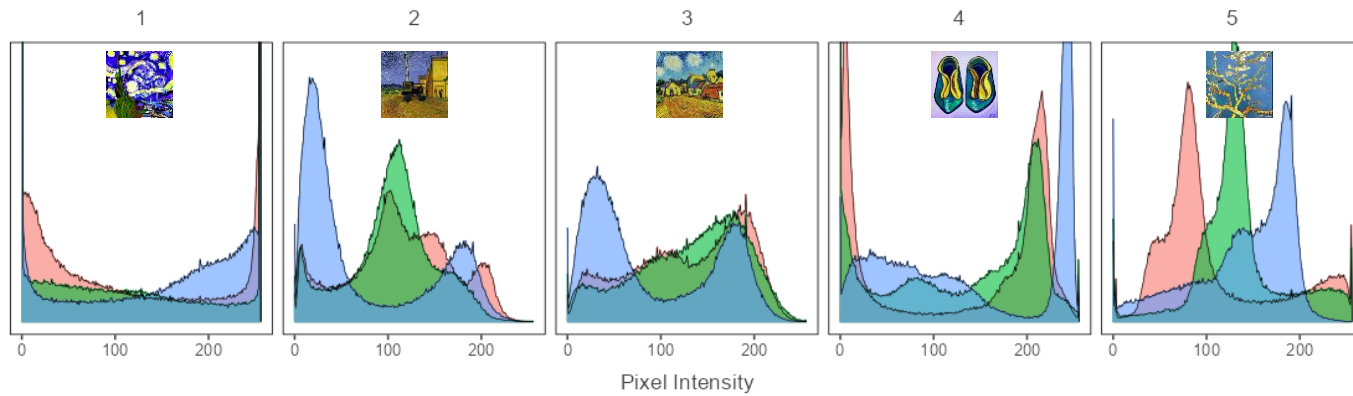
= no effect on classification

# GAN classification

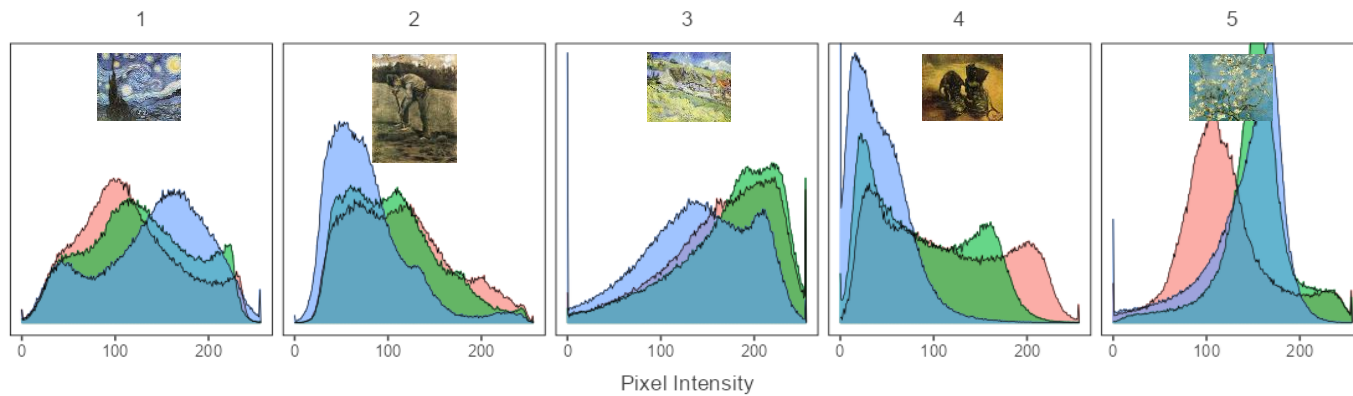


		Actual values	
		Positive	Negative
Predicted values	Positive	2041	1105
	Negative	1105	2041

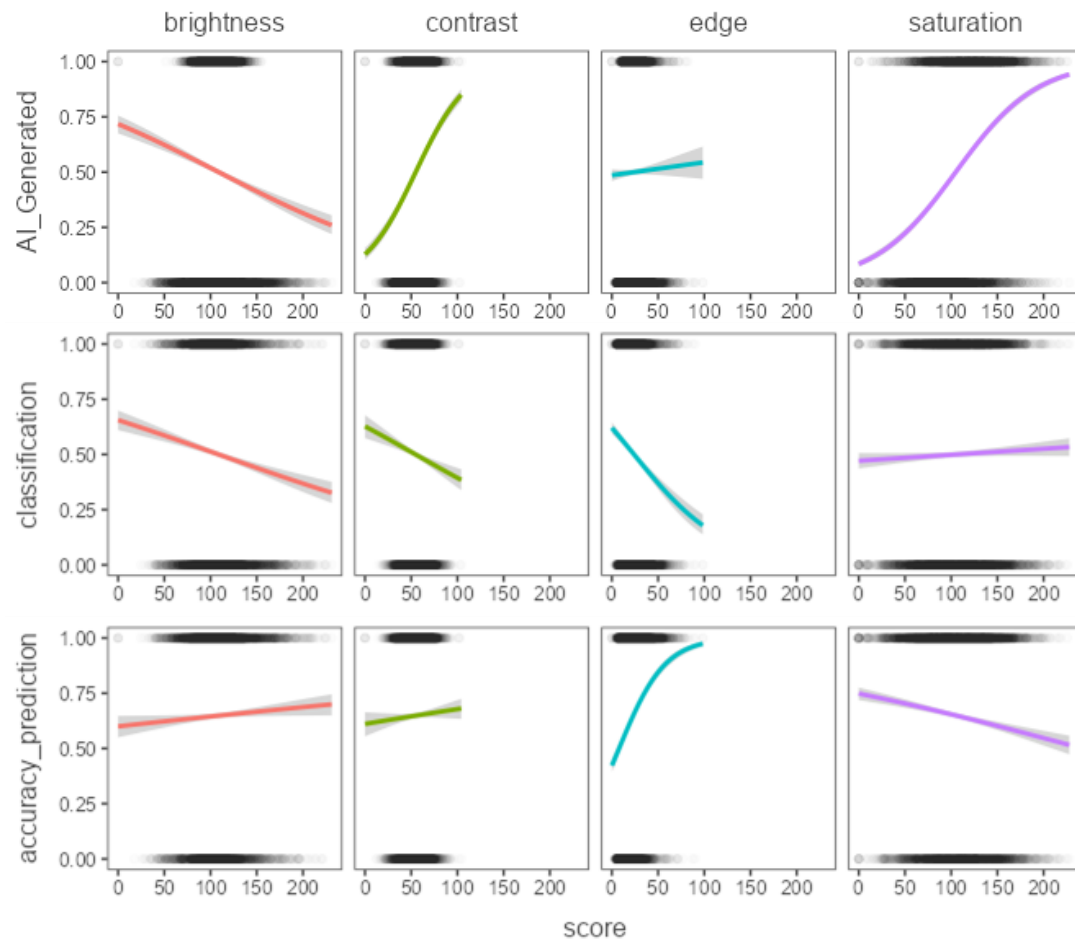
Fake



Real



# Image Features

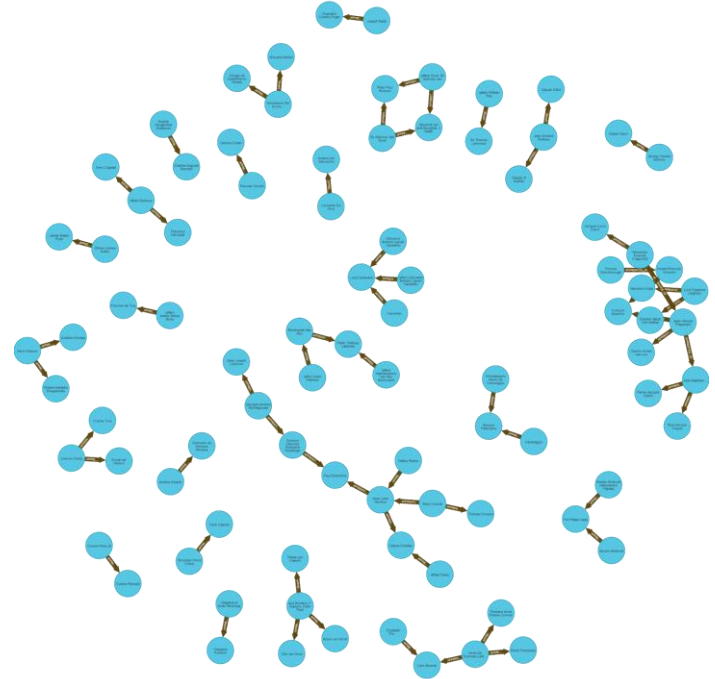


# Other features



The #1 Database for Connected Data

- Community detection with WCC
- Artists based on apprenticeship

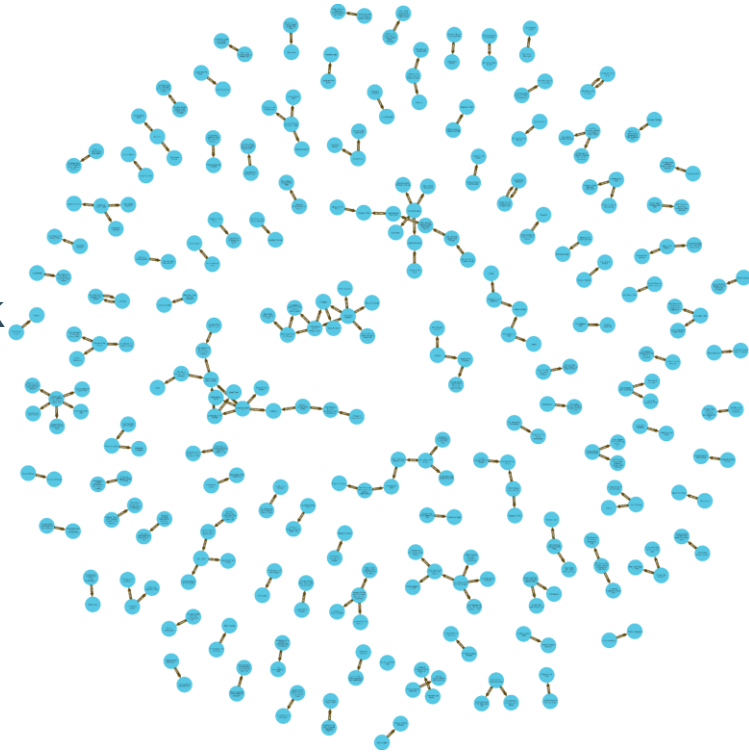




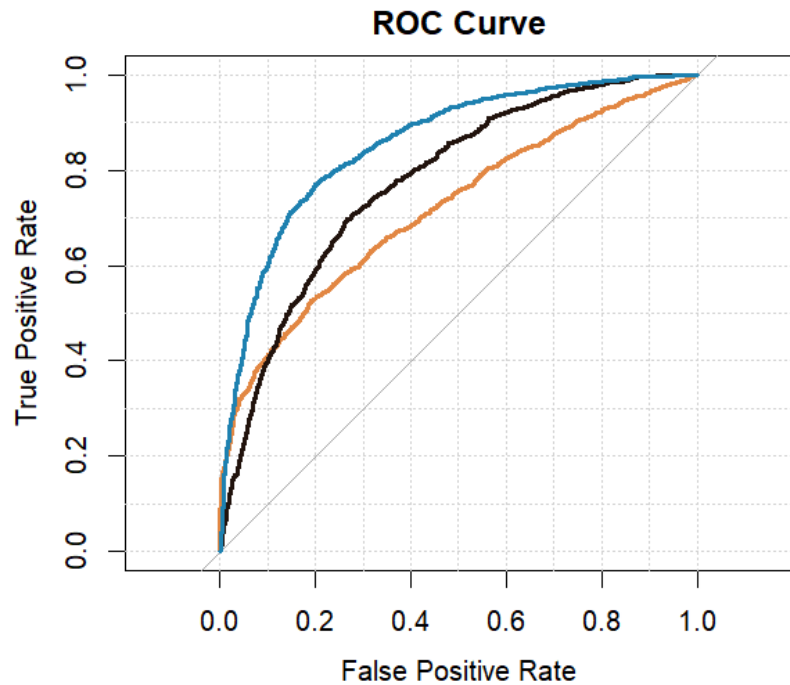
# Other features

- Artworks based on recommendation
- Similar results
- New approach:

The number of recommendations for each Artwork



# Model Performance



## Legend

- GAN classifier  
(AUC = .718)
- Image feature classification  
(AUC = .776)
- GAN + image feature classification  
(AUC = .855)

# Conclusion

## ON THE DETECTION OF SYNTHETIC IMAGES GENERATED BY DIFFUSION MODELS

*Riccardo Corvi\**, *Davide Cozzolino \**, *Giada Zingarini\**, *Giovanni Poggi\**, *Koki Nagano†*, *Luisa Verdoliva\**

★ University Federico II of Naples

† NVIDIA

### ABSTRACT

Over the past decade, there has been tremendous progress in creating synthetic media, mainly thanks to the development of powerful methods based on generative adversarial networks (GAN). Very recently, methods based on diffusion models (DM) have been gaining the spotlight. In addition to providing an impressive level of photorealism, they enable the creation of text-based visual content, opening up new and exciting opportunities in many different application fields, from arts to video games. On the other hand, this property is an additional asset in the hands of malicious users, who can generate and distribute fake media perfectly adapted to their attacks, posing new challenges to the media forensic community. With this work, we seek to understand how difficult it is



"a cute doll writing a letter"



"a bored smoking lizard surrounded by soldiers"



"a parking meter near a graffiti wall"

