Glaze: Protecting Artists from Style Mimicry by Text-to-Image Models

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Artist collaborators: Karla Ortiz, Sarah Anderson, Nathan Fowkes, Kim Van Deun, Jon Lam, Eveline Fröhlich, Edit Ballai, Kat Loveland, Lyndsey Gallant, Reid Southen, Harry Jiang, Oscar Araya, Jingna Zhang, Katharina Jahn, William Saltzstein, Autum Beverly, and more.

TW: discussions of anxiety, depression and self-harm
Early Years
Developing her own style
Developing her own style (cont.)
Full Time Professional Artist
Kelly’s Income Sources

- Sell prints online
- Post sample art online
- Commissions
Over 50 of her paintings scraped into LAION-5B database. No consent, no compensation, no credit given.
In the Style of Kelly McKernan

A woman with white curly hair and a ribbon around her neck by Kelly McKernan
“Watercolor portrait, flowing hair, vibrant colors, beautiful Woman, cosmic, in the style of Kelly McKernan”
Style mimicry has become an industry.

Online marketplaces for style mimicry.
Disruption to artists’ livelihood today

- Artists stop promoting art online or risk mimicry
- Mimicry model replaces artists being trained on
- Anguish, hopelessness, depression...
- Losing their identities
- Many are quitting art
- Demoralizes art students; art classes shrinking
- ...

Based on our user study with 1200+ professional artists in Jan 2023
AI Is Causing Student Artists to Rethink Their Creative Career Plans

"AI introduced and I'm useless"...The agony of an art college student who lost the meaning of studying Confessions of two women found on a cliff [From the scene of Tojinbo]
Today

• Glaze – protect artists against AI mimicry
• Deploying Glaze to artist community
  • Artists’ feedbacks, continue updates
  • Integrations with platforms, other modalities
• Real-world attacks
Artists reach out to us for help

Online townhall organized by Concept Art Association

- Working with artists – interviews/user study
- Developing a protection tool

News coverages (New York Times, etc.)
- Glaze Beta release

July 2023
- 1 million downloads
Without Protection

With Glaze

Add small modifications
- Barely visible to human eye
- Poison diffusion models’ training

Train to mimic style

Generated images mimicking artist’s style

Fail to mimic Artist’s style
Effective against
- mimicry-as-a-service
- countermeasures
Deploying Glaze

- We considered the risks
  - could be misunderstood
  - not future-proof

- Original tweet went viral
  - 4.8 million views

- 1 million app downloads
  - Windows, Mac, GPU support
  - Web service

Free to use, runs locally on Mac/Windows
• Moral boost for artists
  • Thousands of thank-you emails

• Help from artist community
  • App UI design, YouTube video
  • Part of campaign against misuse of Gen AI

• Gaming companies/art platforms

• Follow-up work
  • Writers, voice actors, musicians, choreographers

and many more!

Lynds Gallant
Karla Ortiz
Edit Ballai
Jon Lam
Kelly McKernan
Eva Toorenent
Oscar Araya
Kat Loveland
Sarah Andersen
Lynds Gallant

ARE ARTISTS USING GLAZE?

GLAZE has over 730,000 downloads as of May 26th.
As Generative AI companies continue to scope, it's important to image cloak your artwork moving forward.

THE GLAZE TEAM
Shani Maim
Jenna Crous
Emily Weng
Prof. Wenhao Peng
Prof. Enzo Marchetto
Prof. Ben Rea (AI ethics lead)
Made in by Artist Collaborators:Sydney Gallant (Artist Collaborator);
Nathan Falcon (Artist Collaborator)

https://glaze.cs.uchicago.edu/
Attempts to bypass Glaze in the wild

Glazed “Musa Victorious” by Karla Ortiz

Mimicry attempt

The GLAZE technique is specifically adversarial to finetuning. Decided to take an alternate approach "style mimicry" and used PEZ to reverse engineer viable prompts. Seems to work as expected: generated prompts capture content but bork on style. Great work @ravenben and team!
Attempts to bypass Glaze in the wild

- Possible stronger attacks in the future
- Continue updates to Glaze
  - Testing attacks from the wild
  - Better optimization, less artifacts
  - Account for new diffusion models

Update

2023/03/28 – Seems that using guided filter is not safe enough because the guidance already has adversarial noise in it; the guided filter may bring the adversarial noise back. Perhaps a ‘safer’ idea is to use some other things to process the initial anisotropic filtered image. I will try some random ideas when I have free time but it seems that I do not have so much free time recently.
A Small Step in the Big Picture

Generative AI vs Human creativity

Historic strikes from writer and actor (WGA, SAG-AFTRA)

Senate hearings on Generative AI
A Small Step in the Big Picture

Generative AI vs Human creativity

Engaging with activists (EGAIR)

Talking to the U.S. Copyright office and other legislators

Speaking and educating artists/creators from unions