

**SAND Lab**  
sandlab.cs.uchicago.edu

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

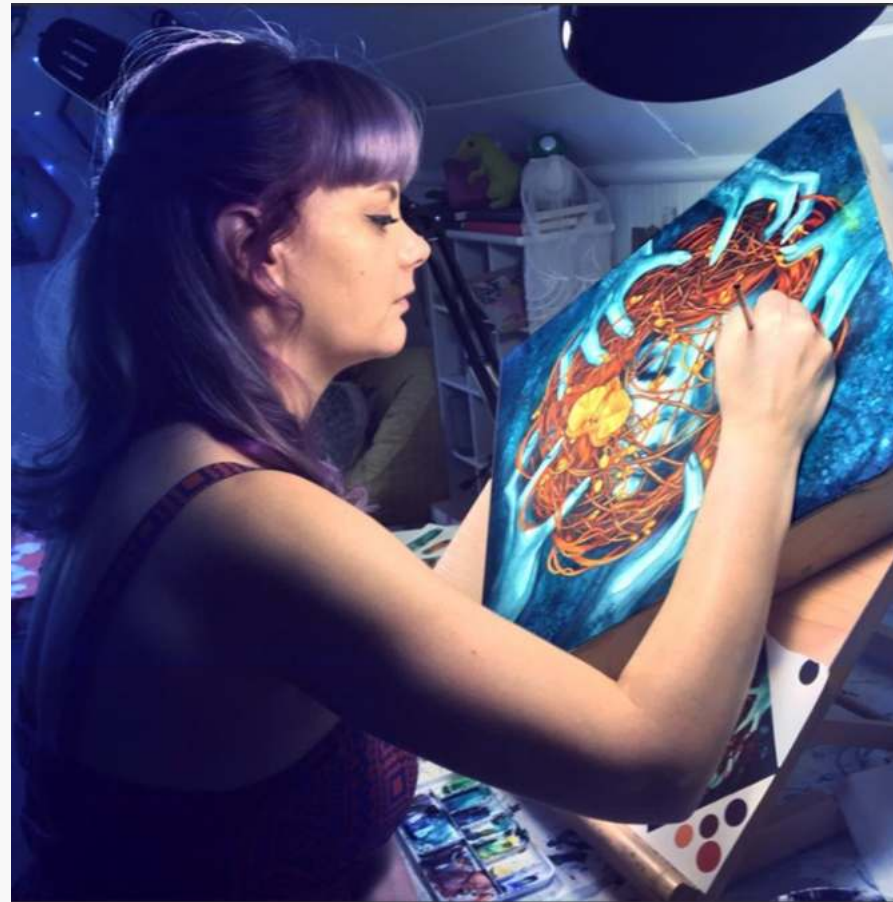
**Shawn Shan, Jenna Cryan, Emily Wenger, Haitao Zheng, Rana Hanocka, Ben Y. Zhao**

**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**

# Kelly McKernan





# Early Years



# Developing her own style



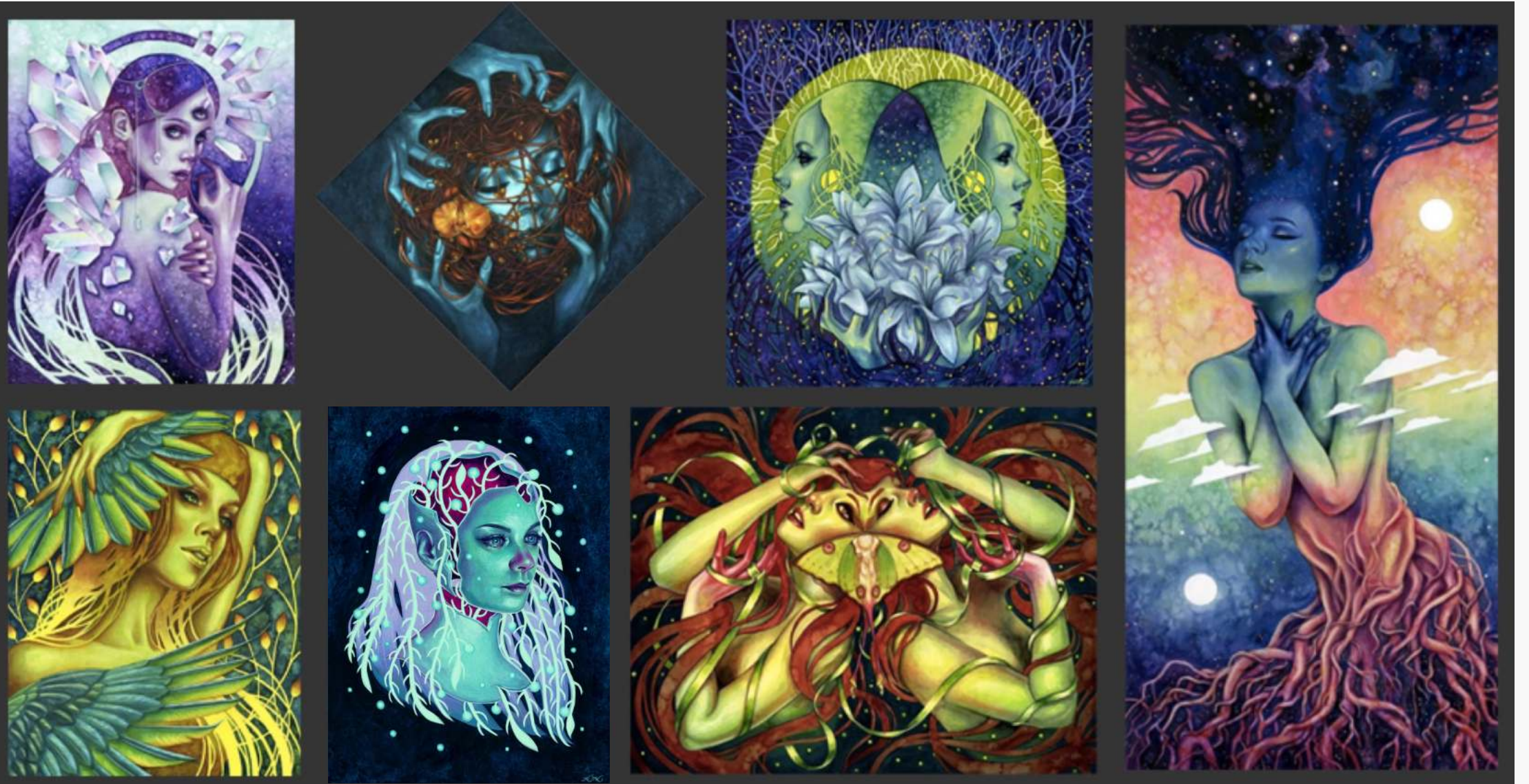


# Developing her own style (cont.)



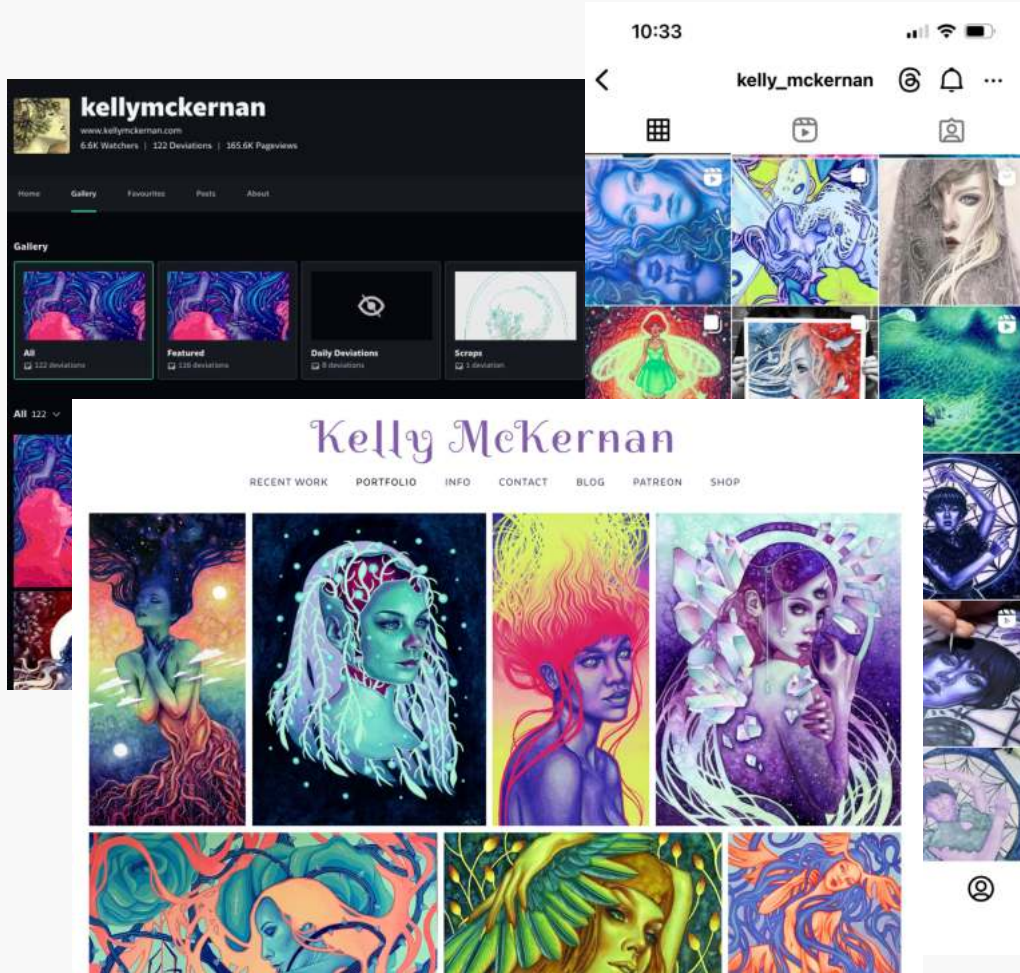


# Full Time Professional Artist

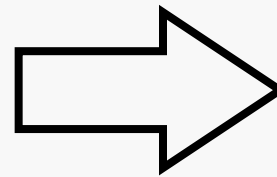




# Kelly's Income Sources



Post sample art online



Commissions



Sell prints online



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*



WickedInsignia  
@wickedinsignia

Removed my work from ArtStation. It's been a good...  
by the opportunity to diversify, try out new platform...  
to new audiences.  
My loyalty lies with the art community, not with the...  
profit from our presence.

ARTS & CULTURE

# AI Is Causing Student Artists to Rethink Their Creative Career Plans

...  
✕

waits for a company,  
wanted more in that  
they went with an AI

ists.

- r/SuicideWatch · Posted by u/Videogame-repairguy 19 days ago  
Considering suicide cause of AI generators.  
3 upvotes 3 comments 0 awards
- r/SuicideWatch · Posted by u/dd\_doubledingo 17 days ago  
Feeling like suicide is an increasingly valid option in my situation (AI, redundancy, rejection, lack of hope for the future)  
8 upvotes 0 comments 0 awards
- r/SuicideWatch · Posted by u/soulofamok 17 days ago  
My end is near, I may lose the only job I have, because of AI. I don't have energy and skills to find another work without a degree.  
6 upvotes 0 comments 0 awards
- r/SuicideWatch · Posted by u/Stunning-Concern1854 3 months ago  
Fuck AI Art  
26 upvotes 9 comments 0 awards
- r/SuicideWatch · Posted by u/3than24 2 months ago  
I'm fucking done with AI (in general)  
6 upvotes 4 comments 0 awards
- r/SuicideWatch · Posted by u/loser-fuckup 4 months ago  
If AI art eclipses human art i WILL kill myself.  
21 upvotes 4 comments 0 awards
- r/SuicideWatch · Posted by u/[deleted] 4 months ago  
ai art  
20 upvotes 4 comments 0 awards
- r/SuicideWatch · Posted by u/WaggleMcDaggle 4 months ago  
What's humanities future relative to AI? whats the point living in a world where human self expression is automated?  
4 upvotes 1 comment 0 awards

HOMESpecial > Feature > "Facing the desire to die"\_From the scene of Tojinbo



「死にたい」と向き合って  
東尋坊の現場から

記事一覧を見るにはこの画像にタッチ

## "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]

July 18, 2023 10:00 am

r replacing

ntions to fire human

or 15\$

### AI Won't Save Your Job

d capable only of unimaginative, routine  
cles and create award-winning art.

to shape our world, it's no surprise that it has  
way we view and experience art. The rise of  
possibilities for creativity and has  
ions of what it means to be an artist.

### Illustrators' Jobs in China

veloping at a speed way beyond our imagination. Two  
uld potentially do the work that used to be done by 10."



GLAZE

# PROTECT YOUR ART FROM AI SCRAPING



YOUR ART (GLAZED)



WHAT AI "SEES"

DOWNLOAD

<https://glaze.cs.uchicago.edu/>

@TheGlazeProject

## Today

- Glaze – protect artists against AI mimicry
- Deploying Glaze to artist community
  - Artists' feedbacks, continue updates
  - Integrations with platforms, other modalities
- Real-world attacks

**Glaze: Protecting Artists from Style Mimicry by Text-to-Image Models**  
Shawn Shan, Jenna Cryan, Emily Wenger, Haitao Zheng, Rana Hanocka, Ben Y. Zhao  
Department of Computer Science, University of Chicago  
shawnshan, jennacryan, ewillson, hizheng, ranahanocka, ravenben}@cs.uchicago.edu

**Abstract**

Models such as Midjourney place many in the position where models can learn to "fine-tune" the design, enabling

1. Sample AI-generated art-pi  
1.69j



Sept 2022

Artists reach out to us for help

Nov 2022

Online townhall organized by  
Concept Art Association

Feb 2023

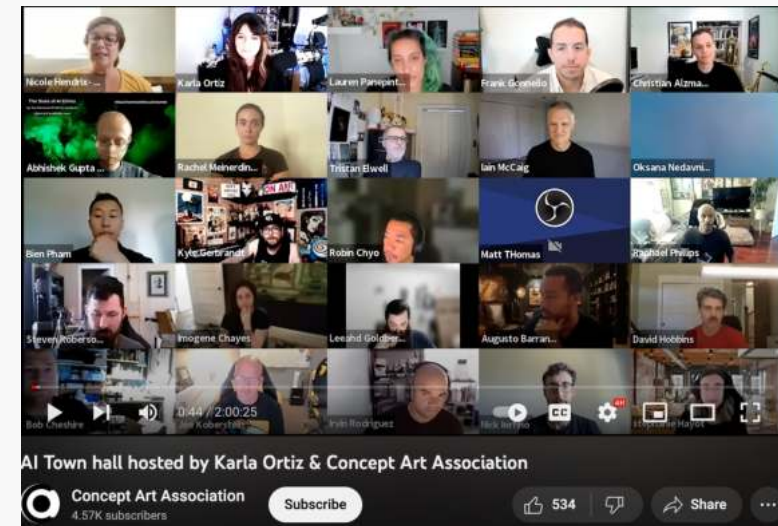
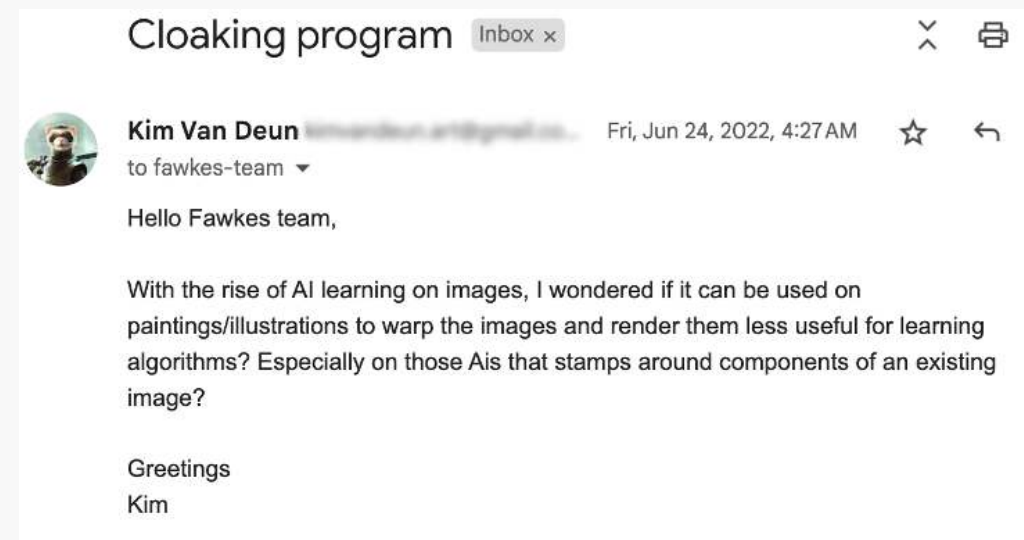
- Working with artists – interviews/user study
- Developing a protection tool

Mar 2023

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

July 2023

1 million downloads



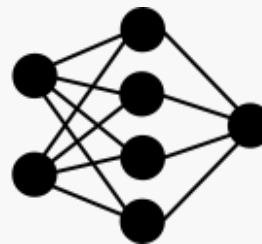


*Without Protection*



Train to mimic style

*e.g. Finetune a stable diffusion pretrained model*



Generated images mimicking artist's style

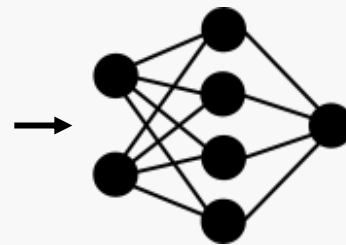


*With Glaze*



Original art

Glazed art



**Fail to mimic Artist's style**

***Add small modifications***

- Barely visible to human eye
- Poison diffusion models' training



Original art

Mimicked art  
w/o protection

Mimicked art  
with protection

Nathan Fowkes



Monet



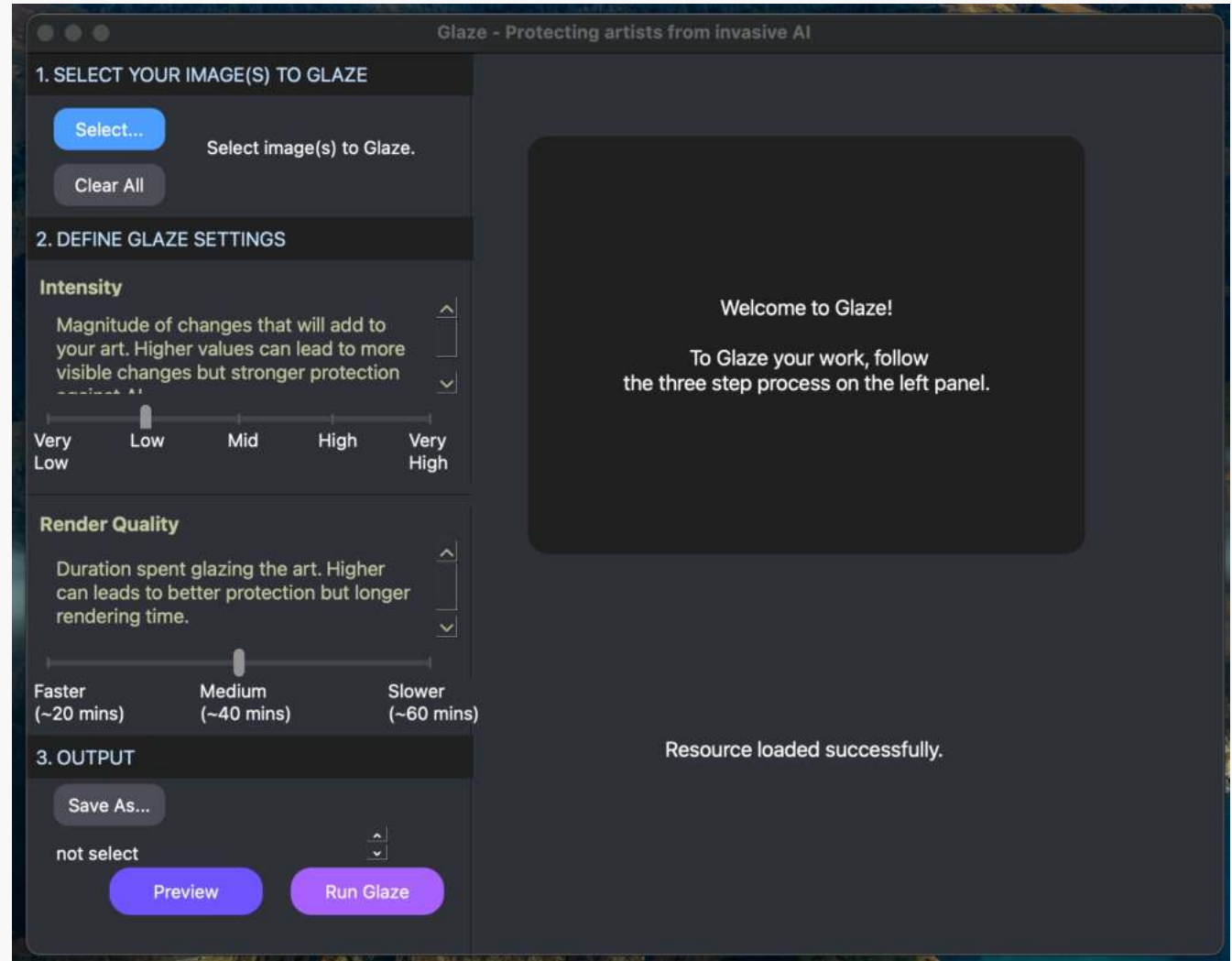
**Effective against**

- 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



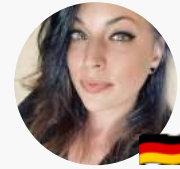
*Free to use, runs locally on Mac/Windows*



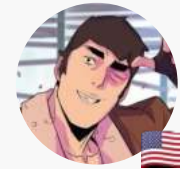
- Moral boost for artists



Karla Ortiz



Edit Ballai



Jon Lam



Kelly McKernan



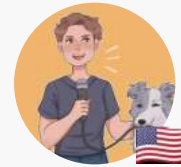
Eva Toorenent

- Thousands of thank-you emails

- Help from artist community



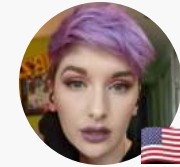
Oscar Araya



Kat Loveland



Sarah Andersen



Lynds Gallant

and many more!

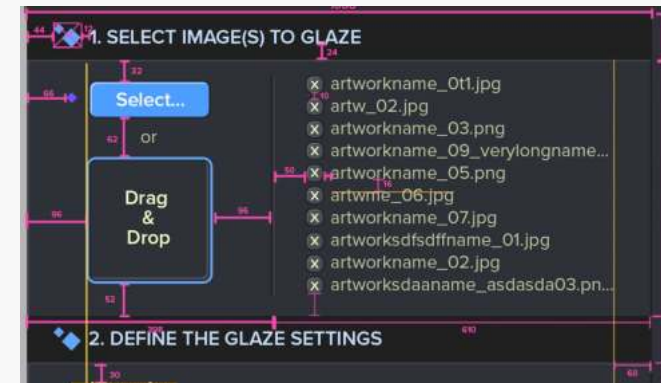
- App UI design, YouTube video

- Part of campaign against misuse of Gen AI

- Gaming companies/art platforms

- Follow-up work

- Writers, voice actors, musicians, choreographers



**GLAZE**

# ARE ARTISTS USING GLAZE?

GLAZE has over 730,000 downloads as of May 26th.

As Generative AI companies continue to scrape, it's important to image cloak your artwork moving forward

## THE GLAZE TEAM

Shawn Shan  
Jenna Cryan  
Emily Wenger  
Prof. Heather Zheng  
Prof. Rana Hanocka  
Prof. Ben Zhao (Faculty lead)  
Karla Ortiz (Artist Collaborator)  
Lyndsey Gallant (Artist Collaborator)  
Nathan Fowkes (Artist Collaborator)

DOWNLOAD  
<https://glaze.cs.uchicago.edu/>  
@TheGlazeProject

# Attempts to bypass Glaze in the wild



*Glazed "Musa Victoriosa"*  
by Karla Ortiz

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!



Mimicry attempt



# Attempts to bypass Glaze in the wild

Posted by u/mmmiiiiiaaoo 4 months ago

So fast. These guys begin to make scripts to remove adversarial noise

[Resource](#) | [Update](#)

Quick link that I find out a moment ago

[llyasviel/AdverseCleaner: Remove adversarial noise from image](#)

画像生成AIプロテクター「Glaze」の加工を無効化してAI学習で使えるようにしてみた

♡ 16



ソウ  
2023年4月22日 10:42

何やら画像生成AIの学習に使われなくなるイラストというものが流行っているそう。

没想到这么快就有Glaze的对策了。【绘画吧】 - 百度贴吧



2023年3月20日 没想到这么快就有Glaze的对策了。没想到ControlNet的作者张吕敏这... 出了个简易的去Glaze噪声的脚本的。huggingface上还有一个简... 我版本,感觉魔高一丈道高一丈了。https://huggingface...



llyasviel / AdverseCleaner

## 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.

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

# 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



Speaking and educating artists/creators from unions



Engaging with activists (EGAIR)



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





© Sarah Andersen



 @TheGlazeProject  
glaze.cs.uchicago.edu  
webglaze.cs.uchicago.edu



ZAKUBA ART