Experimental Visualization Lab

Media Arts & Technology, University of California, Santa Barbara

lab 2611, Elings Hall

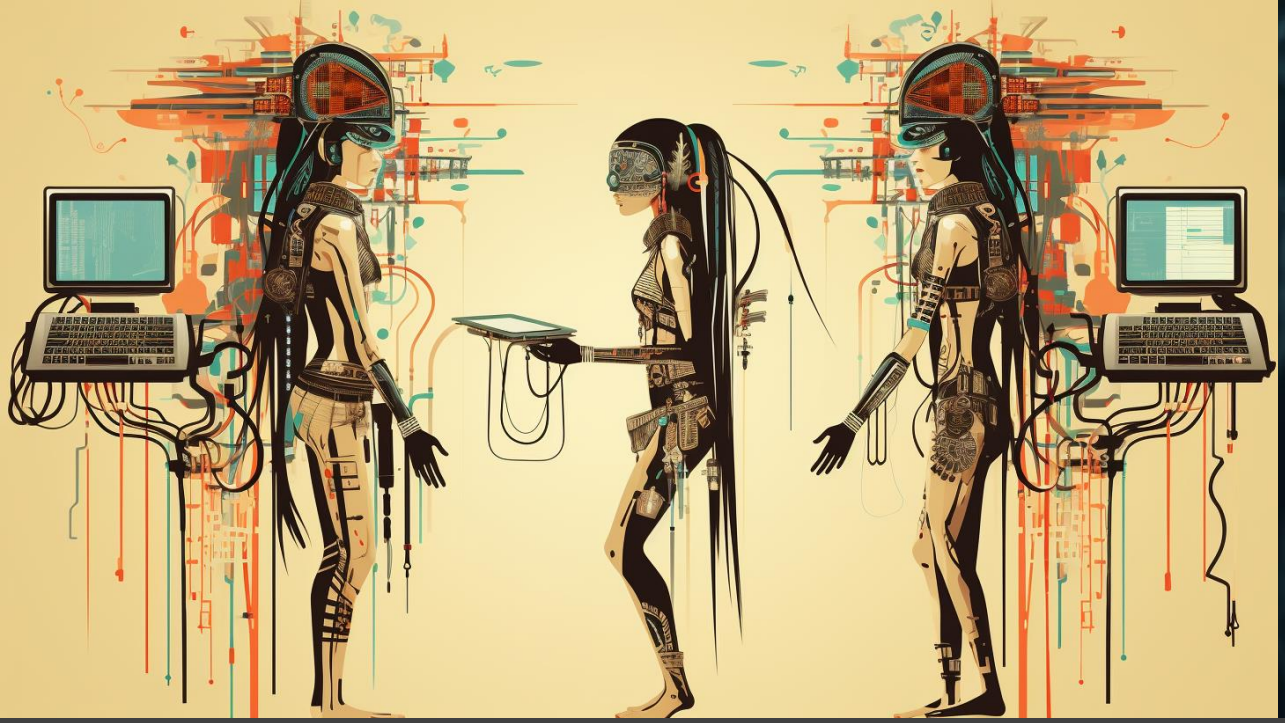
Vislab.mat.ucsb.edu

Applied Research & Projects in:

- Data Visualization
- AI & computational, algorithmic imaging studies
- Computational and Conceptual Photography
- Multi-robotic camera interaction systems
- Interactive Installations and data collection in public venues

Photo by Weihao Qiu

Tinghao Zhou: *Pollens*



Bryan Serra: “modern mesoamerican people, indigenous, futuristic technology, spiritual connection to the internet, personification of the internet, CPU motherboard, wires, full-body, neutral pose, fashion runway --ar 16:9 --no portrait, close up, 3/4 shot --style raw --s 250 "

Bryan Serra: " modern mesoamerican people, futuristic technology, spiritual connection to the internet, personification of the internet, CPU motherboard, wires, full body photo, neutral pose, fashion --ar 16:9 --style raw --s 250 "

Bryan Serra: "modern mesoamerican people, headdress futuristic technology, spiritual connection to the internet, personification of the internet, CPU motherboard, wires, 2010s tumblr flicker blohouse indie sleaze seapunk witch house aesthetic, full-body photo, neutral pose, fashion runway --ar 16:9 --no portrait, close up, 3/4 shot, drawing --style raw --s 250"

Bryan Serra: "Midjourney Bot BOT — Today at 3:34 AM modern mesoamerican people, futuristic technology, spiritual connection to the internet, personification of the internet, CPU motherboard, wires, 2010s tumblr flicker blohouse indie sleaze crystal castles witch house aesthetic, full-body photo, neutral pose, fashion runway --ar 16:9 --no portrait, close up, 3/4 shot, drawing --style raw --s 250"

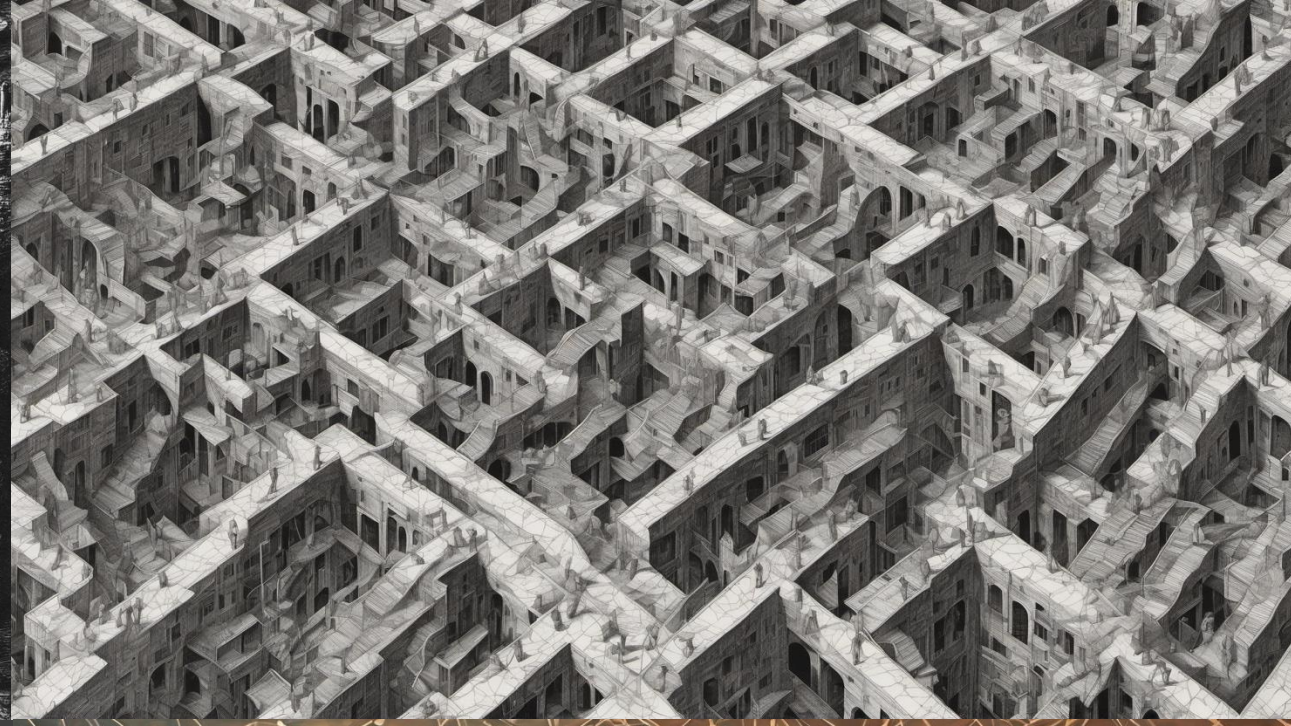




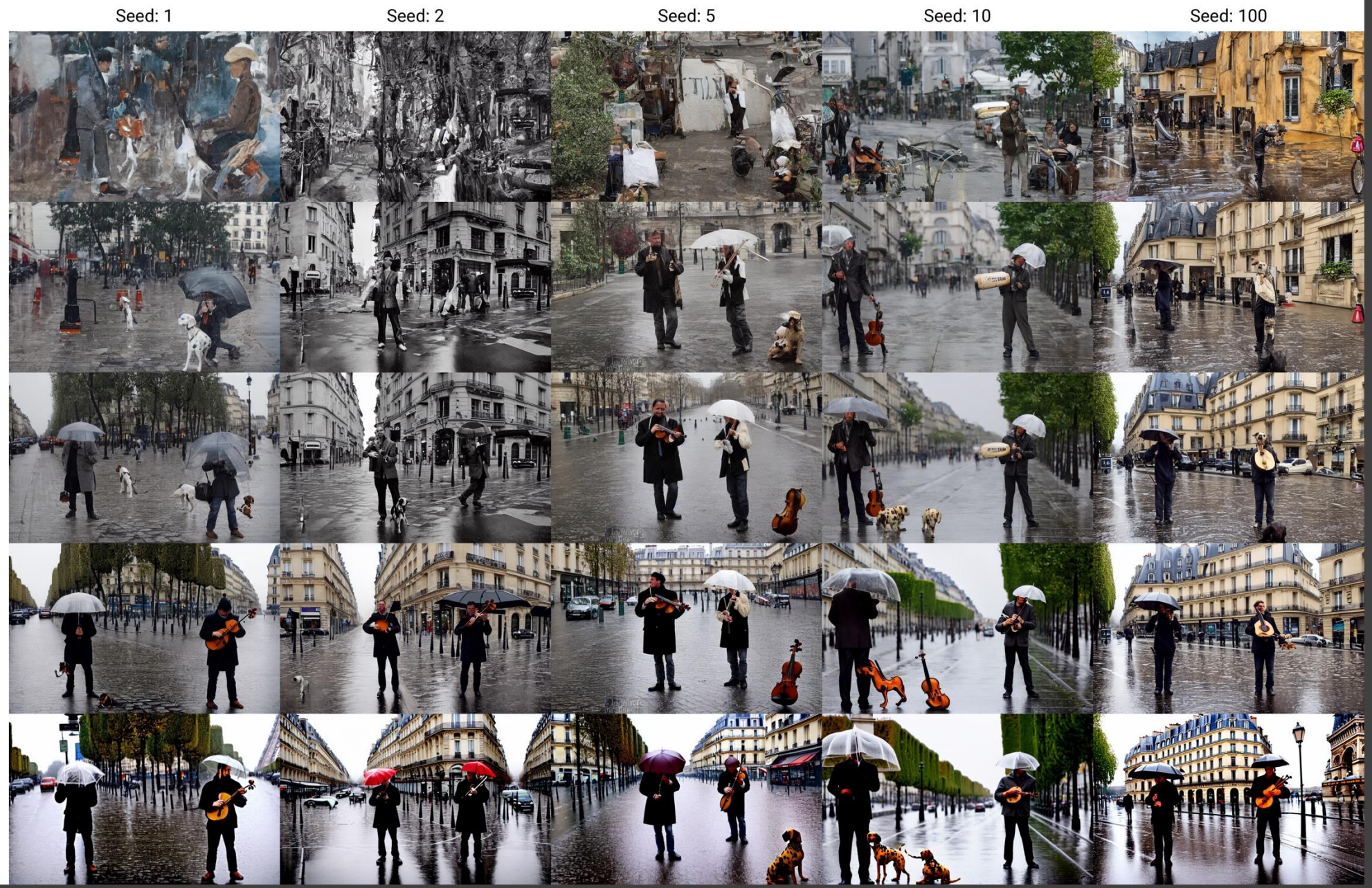

Jack Kilgore: *hands first person, angels playing counter strike, first person shooter, photorealistic, 8k --quality 2 --ar 16:9*

Jack Kilgore: *black metal guitarist in the desert; super 8; 2pm; closeup of hands --seed 2083*

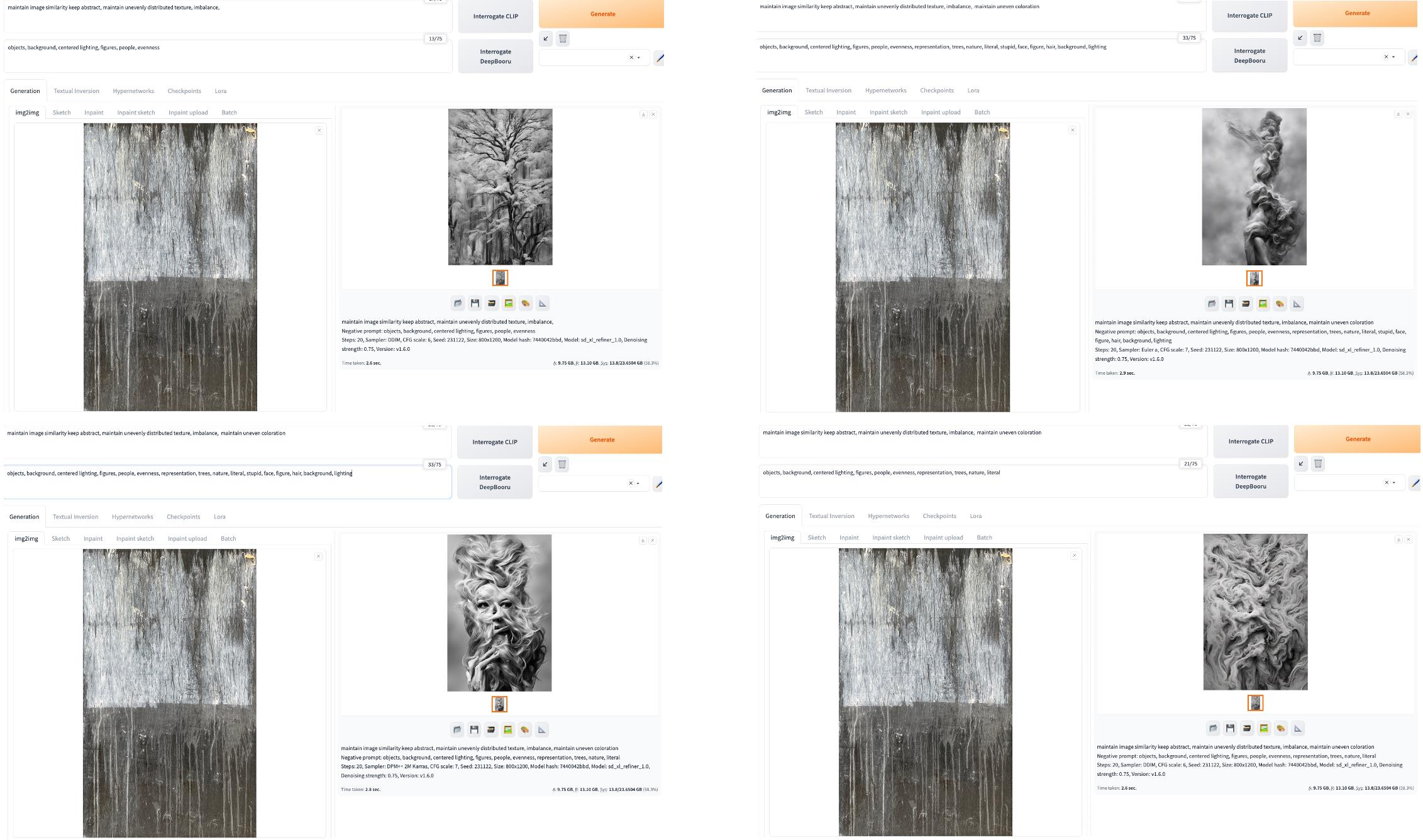
Jazer: A trash compactor filled with art works, sculptures and paintings being compressed. photograph. garbage dump. --chaos 70 --ar 16:9 --style raw --stylize 200 --weird 2100 --v 6.1



Borou Yu: https://drive.google.com/file/d/1rRirGYdRJYoYM-qtHjLenu6m



Autumn Smith: Rainy day in Paris, man standing on corner holding a violin and a bottle of wine, with a dalmatian by his side
Steps: 34, Sampler: DPM++ 2M Karras, CFG scale: 1.0, Seed: 1, Size: 800x510, Model hash: 6ce0161689, Model: v1-5-pruned-emaonly, Script: X/Y/Z plot, X Type: Seed, X Values: "1, 2, 5, 10, 100 ", Fixed X Values: "1, 2, 5, 10, 100", Y Type: CFG Scale, Y Values: "1.0, 3.0, 5.0, 10.0, 20.0", Version: v1.6.0



Stable Diffusion Img-to-Img Results: Current challenges is how to have greater control of results

Image Composition Studies

Image Composition Studies

Stable Diffusion checkpoint

v1-5-pruned-emaonly.safetensors [6ce0161689]

SD VAE

Automatic

txt2img | img2img | Extras | PNG Info | Checkpoint Merger | Train | Promptgen | Settings | Extensions

0/75

an irregular, complex, robotic machine placed in an enclosed lab space viewed sideways

Interrogate CLIP

Generate

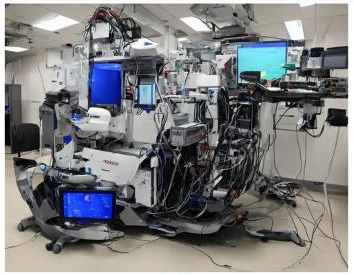
4/75

symmetry, forward perspective

Interrogate DeepBooru

Generation | Textual Inversion | Hypernetworks | Checkpoints | Lora

img2img | Sketch | Inpaint | Inpaint sketch | Inpaint upload | Batch



an irregular, complex, robotic machine placed in an enclosed lab space viewed sideways

Negative prompt: symmetry, forward perspective,
Steps: 20, Sampler: DPM++ 2M Karras, CFG scale: 7, Seed: 3262235626, Size: 1024x800, Model hash: 6ce0161689, Model: v1-5-pruned-emaonly, Denoising strength: 0.75, Version: v1.6.0

Time taken: **1.8 sec.**

A: **5.26 GB**, R: **8.63 GB**, Sys: **9.2/23.6504 GB** (38.9%)

Stable Diffusion checkpoint

v1-5-pruned-emaonly.safetensors [6ce0161689]

SD VAE

Automatic

txt2img | img2img | Extras | PNG Info | Checkpoint Merger | Train | Promptgen | Settings | Extensions

22/75

an irregular, complex, cluttered,robotic machine made of translucent light placed in an enclosed lab space viewed sideways

Interrogate CLIP

Generate

6/75

symmetry, forward perspective, cabinets

Interrogate DeepBooru

Generation | Textual Inversion | Hypernetworks | Checkpoints | Lora

img2img | Sketch | Inpaint | Inpaint sketch | Inpaint upload | Batch

an irregular, complex, cluttered,robotic machine made of translucent light placed in an enclosed lab space viewed sideways

Negative prompt: symmetry, forward perspective, cabinets
Steps: 20, Sampler: DPM++ 2M Karras, CFG scale: 7, Seed: 811710814, Size: 1024x800, Model hash: 6ce0161689, Model: v1-5-pruned-emaonly, Denoising strength: 0.75, Version: v1.6.0

Time taken: **1.8 sec.**

A: **5.26 GB**, R: **8.63 GB**, Sys: **9.2/23.6504 GB** (38.9%)

Image Research: What Are Photographic Primitives

- Cultural and ideological **visual content**
- the **sub-division** and **organization** of the image
- **Point-of-View**: How is the angle of the view determined
- **visual tension** between forms
- overall simple to **complex** structures
- foreground / background
- regular to **irregular** forms (repetition / variation)
- balanced / **imbalanced** spatial grouping of forms
- what angle directions for forms and lines
- **rhythmic** variation
- **texture** range for each form
- light / dark tones for **subsections**
- the number of light / dark toning areas
- the number of colors, color hue(s), color **saturation**, color darkness / **brightness**
- **complementary** color contrast
- **depth** perspective (depth of field)
- **blur** value between visual elements

MAT 255 Techniques, Aesthetics of the Computational Image
Tues-Thurs 3:30pm-4:45 pm – Experimental Visualization Lab, 2611, Elings Hall

- A project-based course for **creative exploration** and
- **Critical analysis** of text-to-image and image-to image production techniques in Stable Diffusion software with Automata 1111 (3 weeks) and ComfyGUI (3 weeks)
- Experimentation in **time-based** generative visualization (SORA, or equivalent)

The goal is to explore the creative opportunities of readily available AI software and to reflect on the impact of AI on how we create and understand the photograph's transformation

Course content includes weekly presentations of projects, methods and discussion to analyze the impact of diffusion models on the creative process

Student work consists of image production and reviews of assigned readings

glegrady@ucsb.edu
vislab.mat.ucsb.edu