Final Project | MAT255 F23 | Instructor: Prof. George Legrady

Mythology Of The Post-Colonial

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Overview

Mythology Of The Post-Colonial comprises a collection of polyptychs, generated through natural language prompts on Stable Diffusion Automatic 1111 v1.6 (SDXL Refiner, ControlNet). These artworks depict AI-emulated black and white street photography, capturing the essence of the densely populated and environmentally burdened post-colonial city of Calcutta (now known as Kolkata) in India. Being a native of that city, these images raise a myriad of social and ethical questions for me, extending beyond the evident technical limitations of Stable Diffusion in accurately depicting images of the everyday world. Generative AI models like Stable Diffusion, that produce unique photorealistic images from text and image prompts rely on training data to function. Training data (also known as a training set or learning set) is the input dataset utilised in the training of a machine learning model. These models use training data to acquire knowledge and fine-tune rules, enabling them to make predictions on unseen data points. Although some of the urban architectural aspects in my images — the buildings and arcades — somewhat closely resemble the Calcutta that I know, the vehicles and the facial features and details of clothing of the people populating them show deep-seated bias against and ahistorical misrepresentation of heavily congested and polluted post-colonial urban settings in the Global South. The Global South is always imagined as the mystified "other" of the west. What this reveals is the socio-culturally biased, uncritically "othering" aspects of the datasets that SDXL has been trained on.
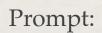
Kate Crawford, in her critical essay *Anatomy of an AI System* (https://anatomyof.ai/) demonstrated the racial, ethnic, and gender biases within the AI system, using the UTK face dataset with 20,000 facial images labeled by age, ethnicity, and gender, revealing the dataset's limited categories, including a strict binary gender classification. To understand this "othering" as a fact of mythifying everyday life, I had to resort to the writings of French literary theorist and semiotician Roland Barthes. Published in 1957, *Mythologies* is a collection of essays where Barthes explores the cultural and ideological meanings embedded in everyday objects, events, and popular culture. He analyses various aspects of contemporary culture, including advertisements, wrestling, popular magazines, and consumer products to reveal how seemingly trivial or mundane elements in daily life contribute to the creation and perpetuation of cultural myths. As an ideological critique of the dominant narratives and values present in society, these essays unveil the ways in which cultural products and practices reinforce certain ideologies, influencing how individuals perceive the world around them. This is why, beyond Stable Diffusion's consistent tendency to generate images featuring human figures with extra or missing limbs or houses resembling vehicles, what is more disconcerting in these depictions is the prevalence of Volkswagen hippie vans (rarely seen in Calcutta), flooding the city streets, or the use of the word "polluted" next to "Calcutta" in the text prompt, producing bustling streets lined with garbage piles that does not accurately represent the reality of the situation. I have included the corresponding text prompts with every image in order to demonstrate this aspect of cultural misrepresentation as well as other issues.

Prompt:

desaturated dramatic black and white photograph of a busy Kolkata city street in India during daytime, top-angle, top-shot, helicopter view, grainy, bleach bypass, Kodak TriX 400 ISO film, high-contrast, Chiaroscuro lighting style

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 14, Seed: 250, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.7, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy modern Kolkata overcrowded, polluted city street in India during daytime, top-angle, top-shot, helicopter view, grainy, bleach bypass, Kodak TriX 400 ISO film, high-contrast, Chiaroscuro lighting style

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 14, Seed: 250, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.7, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded, polluted city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 11, Seed: 250, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded, polluted city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck
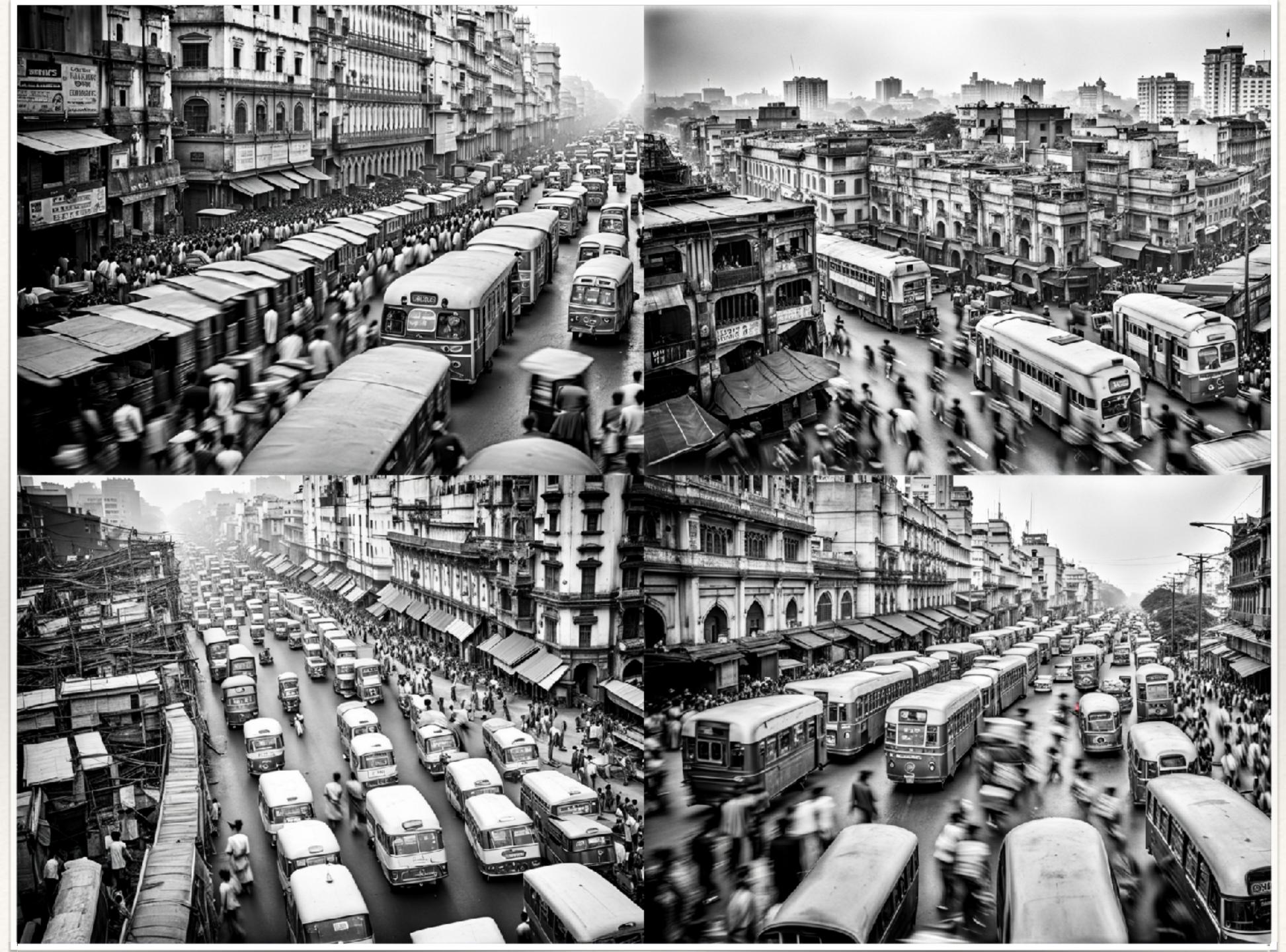
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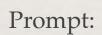
Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 11, Seed: 50, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 11, Seed: 100, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast
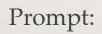
Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 13, Seed: 100, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast
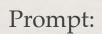
Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 14, Seed: 100, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck
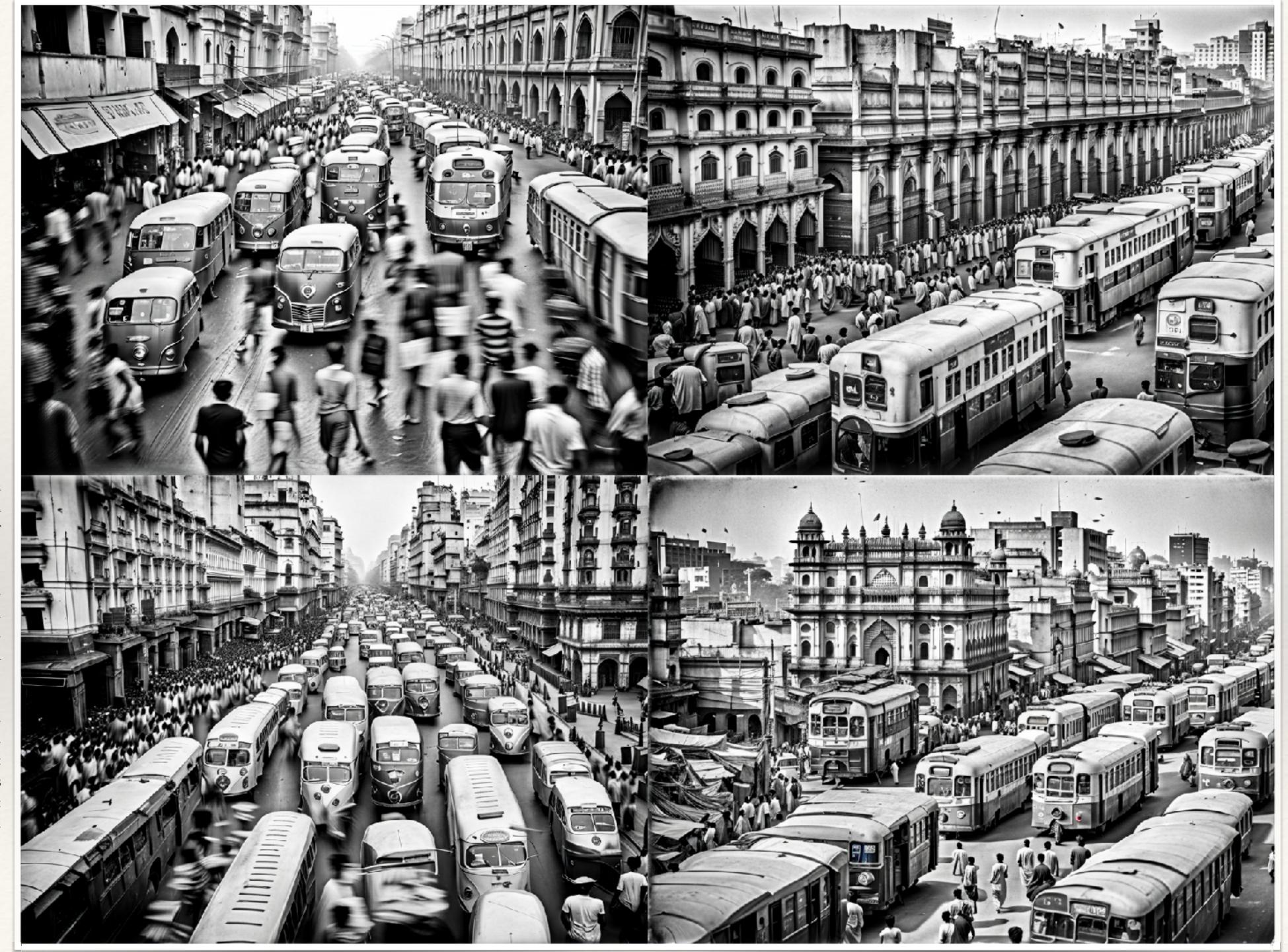
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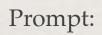
Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck
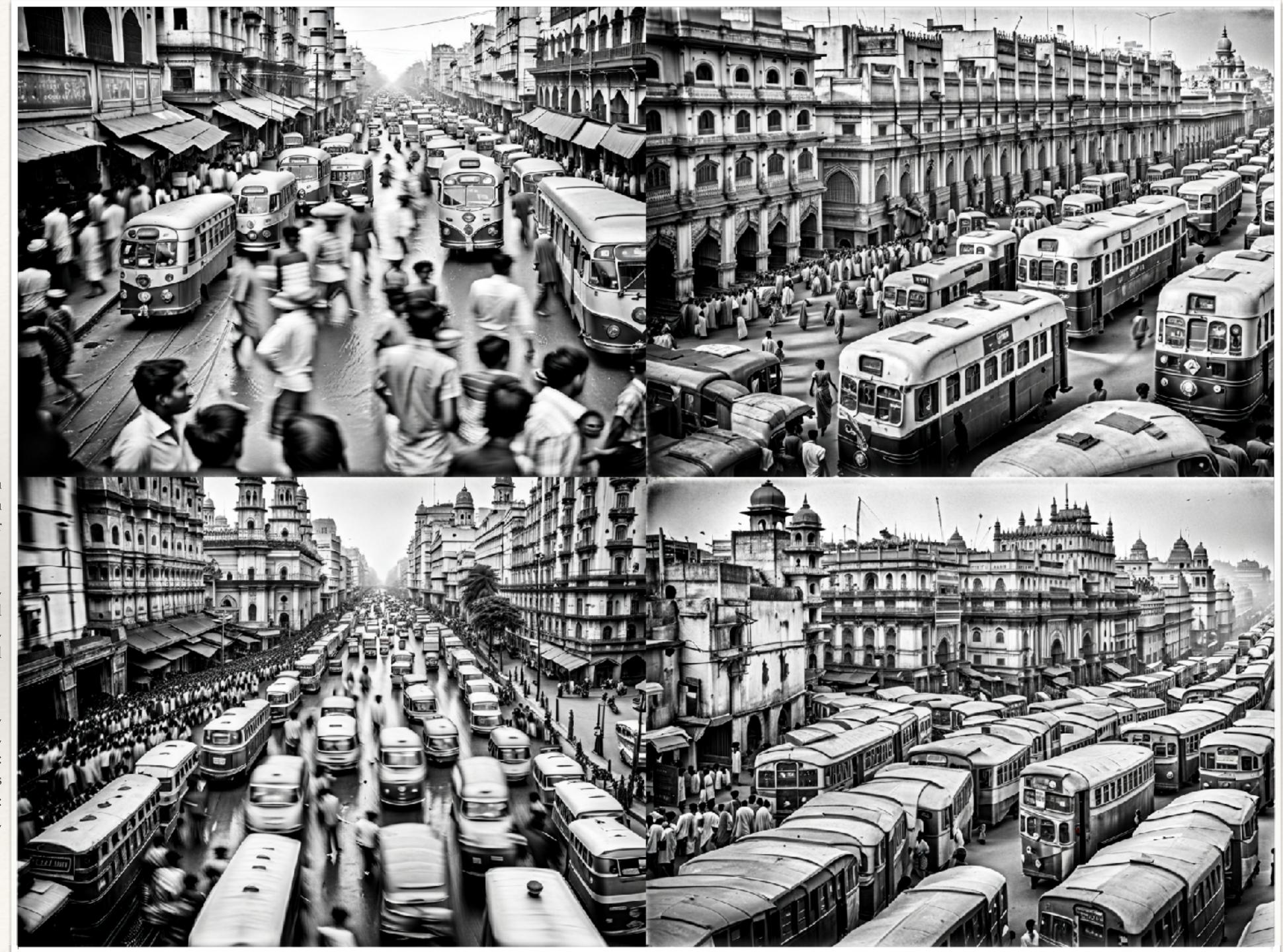
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Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 20, Seed: 100, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0
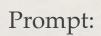
Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

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Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 20, Seed: 150, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast
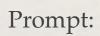
Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck
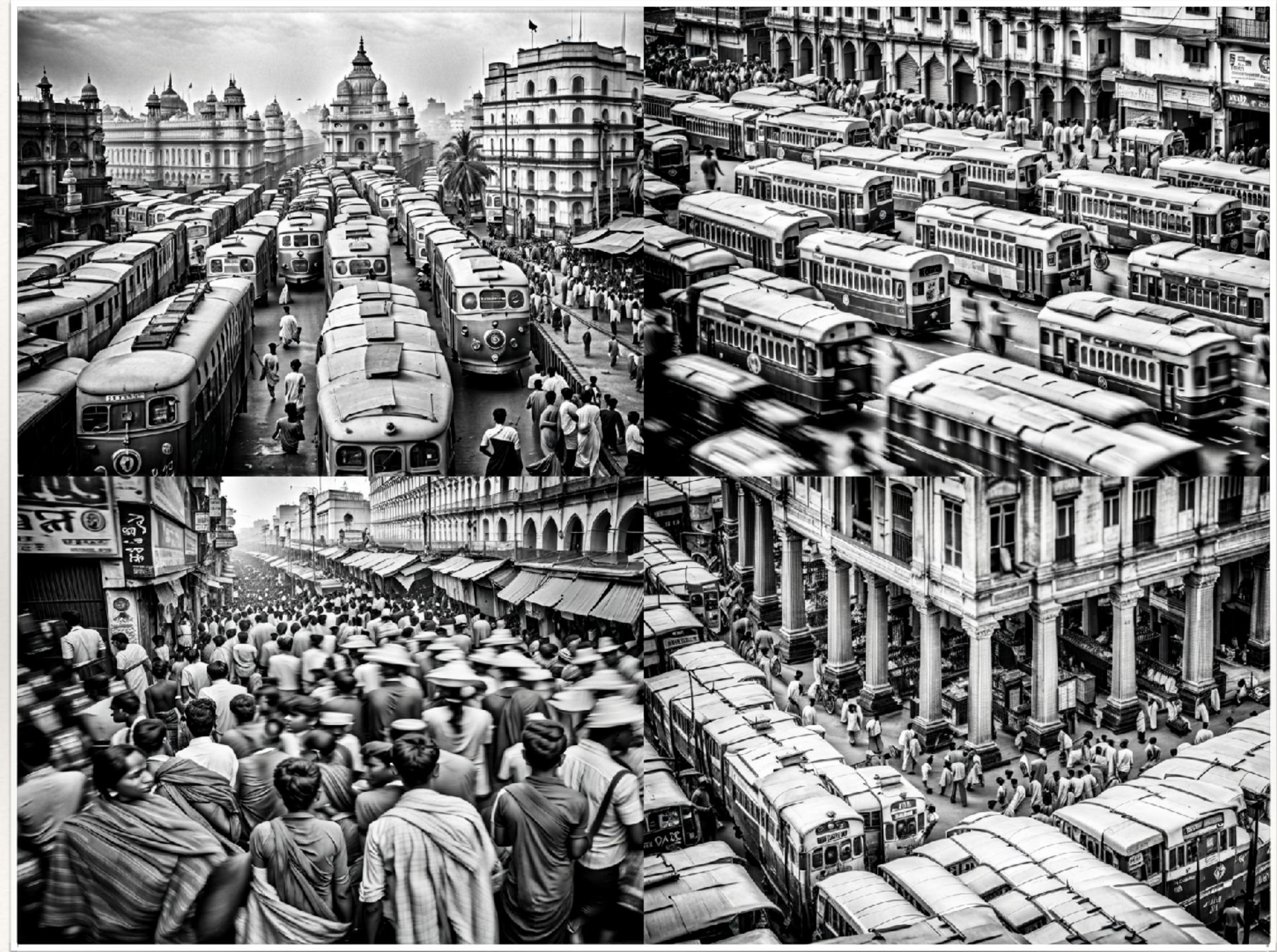
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Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 20, Seed: 250, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

Prompt:

desaturated dramatic black and white photograph of a busy, overcrowded city street in contemporary Calcutta in India during daytime, top-angle, top-shot, helicopter view, Kodak TriX 400 ISO film, high-contrast

Negative prompt: watermark, ugly, deformed, ugly, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck

Steps: 60, Sampler: DPM++ 2M Karras, CFG scale: 19.5, Seed: 250, Size: 640x480, Model hash: 7440042bbd, Model: sd_xl_refiner_1.0, VAE hash: 63aeecb90f, VAE: sdxl_vae.safetensors, Denoising strength: 0.52, Hires upscale: 1.45, Hires upscaler: Latent, Refiner: sd_xl_refiner_1.0 [7440042bbd], Refiner switch at: 0.6, Version: v1.6.0

End Note

Working Method:

All images were exclusively generated using Stable Diffusion Automatic 1111 v1.6; no other programs were employed. The goal was to explore the extent to which we can accurately create and control images with Generative AI models like Stable Diffusion through natural language prompts. Due to the considerable challenge posed by Stable Diffusion in rendering human limbs, body parts, vehicles, and architectural details with precision, the corresponding text prompts had to be meticulously refined. But even with carefully crafted text prompts, as well as with the inclusion of terms such as "watermark, ugly, deformed, mutilated, disfigured, text, extra limbs, face cut, head cut, extra fingers, extra arms, poorly drawn face, mutation, bad proportions, cropped head, malformed limbs, mutated hands, fused fingers, long neck" in my negative prompts in order to mitigate anatomical anomalies, the problem proved challenging to completely avoid. To achieve the bleached, high-contrast, sharp-gamma black and white look, my text prompts incorporated terms like "desaturated dramatic black and white photograph, grainy, bleach bypass, Kodak TriX 400 ISO film, high-contrast, Chiaroscuro lighting style." But later, in an attempt to achieve a slightly different black and white film aesthetic, I removed "bleach bypass" from the prompt for certain images, only to observe the persistent presence of the bleach bypass effect throughout the series. Despite the use of terms like "desaturated" and "black and white" in the text prompts, some images still display hints of colour here and there. The final series was organised in Apple Keynote and exported as a PDF.

Curation:

In curating the images, I focused on geometric contiguities in their arrangement. For this series, I opted to create and compile polyptychs of four images for each slide, maintaining a batch count of four (4) on SDXL each time I generated the images. Thus, the polyptychs were generated directly through SDXL. While assembling them in the series, I observed the intriguing patterns emerging among the clusters of buildings, vehicles, and people in the images. Notably, some images exhibited motion blur, reminiscent of capturing a fast-moving object with a slow shutter speed on the camera, even though my prompts did not specifically request this particular effect. As the images consistently exhibited tendencies towards socio-cultural misrepresentations akin to those discussed in the writings of Roland Barthes, the overarching concept of mythified depictions of a real, historical post-colonial cityscape began to crystallise for me. Ultimately, the failure of Stable Diffusion to generate urban images from contemporary Calcutta with historical accuracy as well as the mythification and othering of urban culture in the post-colonial Global South emerged as the central theme in this experiment with a Generative AI model.

Creative Process and The "Look":

The high-contrast, desaturated aesthetic in the images was directly achieved by incorporating specific terms like "desaturated dramatic black and white photograph, grainy, bleach bypass, Kodak TriX 400 ISO film, high-contrast, Chiaroscuro lighting style" in my text prompts. Leveraging my background as a photographer and cinematographer, I have previously honed these effects through training and practice in photographic darkrooms in India and the UK. During my studies, I closely observed and learned about the optical, chemical, and aesthetic peculiarities of various film stocks, as well as how to manipulate them to achieve specific effects. In my current work with digital formats, I replicate similar looks using tools such as Adobe Photoshop, Lightroom (for still images), and Blackmagic Design's DaVinci Resolve (for videos). Contemporary photographers like Sotiris Lamprou (Greece) and David Trattles (Canada) are influential in my creative process, as their works share comparable aesthetic characteristics. Having collaborated with Trattles in India in 2009 and closely following Lamprou's work since 2021, their influence is evident in my artistic approach.