



High-Resolution Image Synthesis with Latent Diffusion Models

LLVM Paper Discussion

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Industry Practitioner / Entrepreneur

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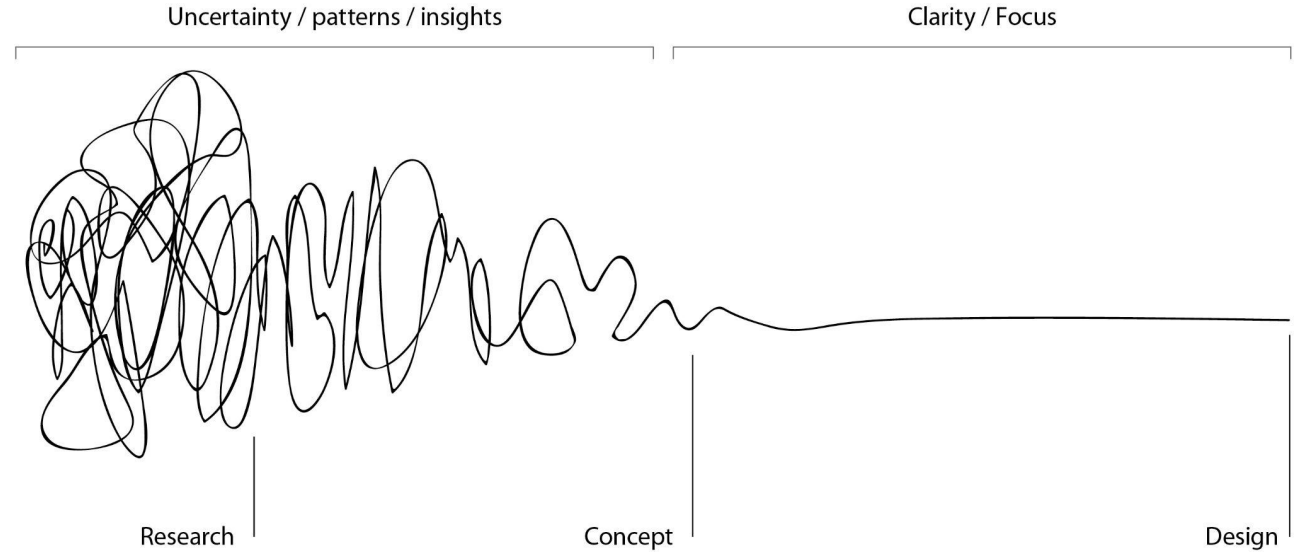


Imageanary

Cofounded by
Alexandre Kaiser and
Nicolas Bourbaki



Imageanary

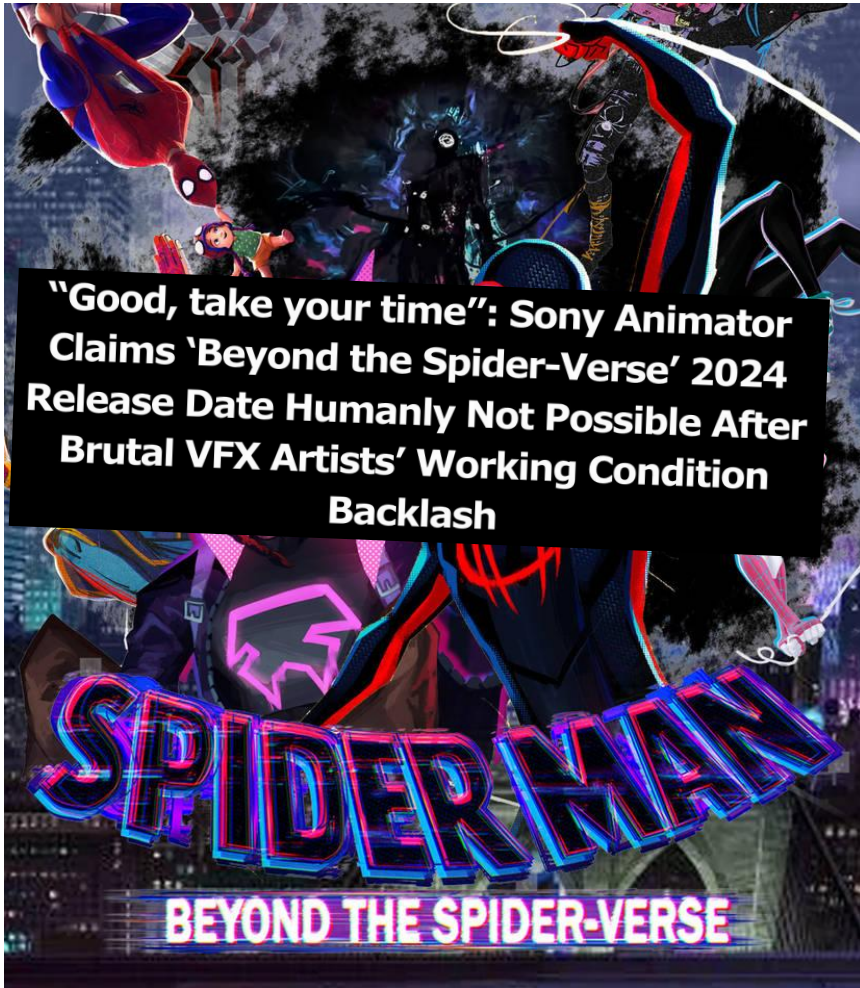


Expanding scope

Faster prototyping

Enriching solution





**"Good, take your time": Sony Animator
Claims 'Beyond the Spider-Verse' 2024
Release Date Humanly Not Possible After
Brutal VFX Artists' Working Condition
Backlash**



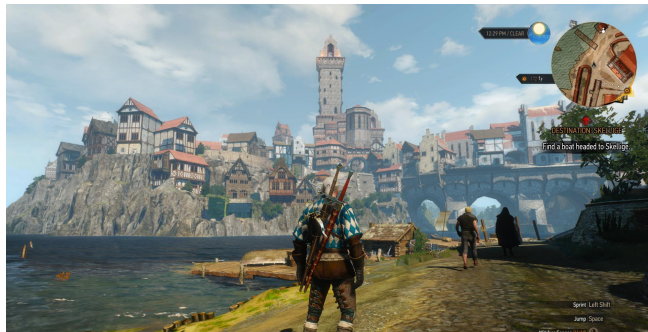
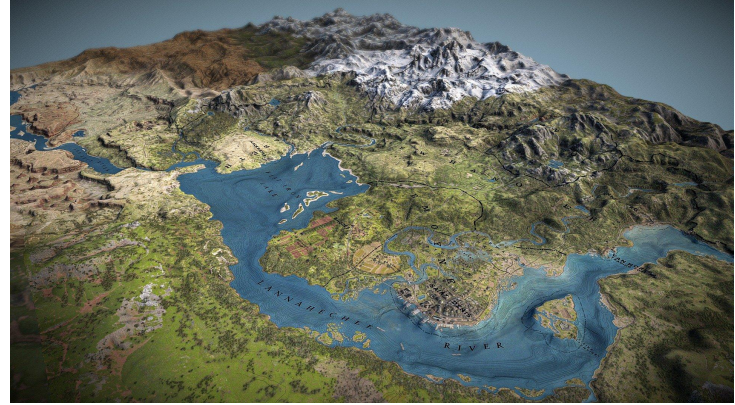
**Insider explains why
Rockstar might delay GTA
6 after official trailer
announcement**

The gaming industry

Global market size: \$235 Billion USD
Annual growth rate: 13.4%

Highest grossing video games of the last decade:

- Grand Theft Auto V
- PUBG
- Mario Kart 8/Deluxe
- Red Dead Redemption 2
- Overwatch
- The Witcher 3



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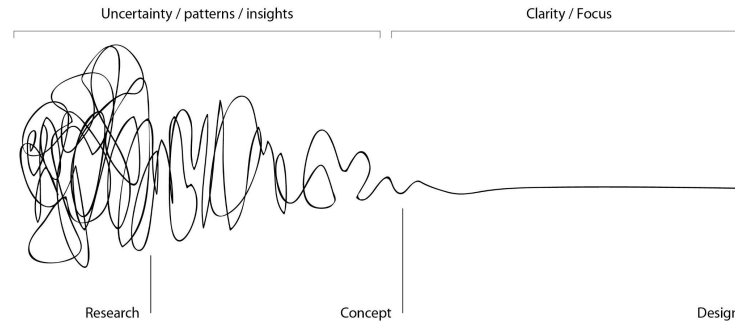
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It's a race for quality, and small developers can't win

Difficulties designing surfaces:

- Personal style/bias
- Mass collaboration
- Detail
- Detail
- Detail

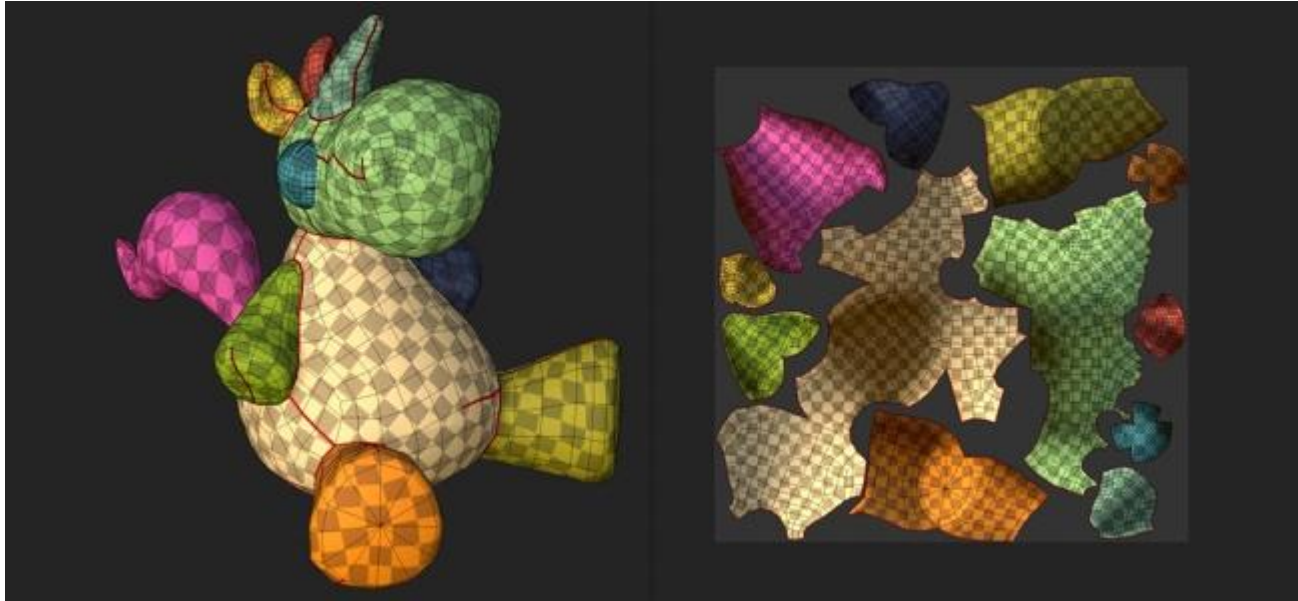


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UV-unwrapping



What can we do?

Super-resolution

bicubic



LDM-SR

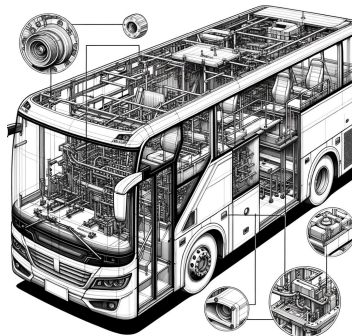
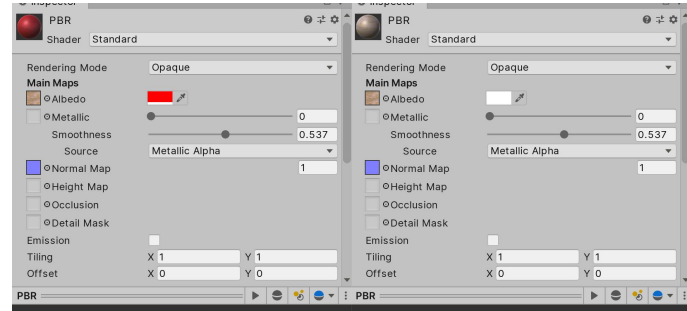
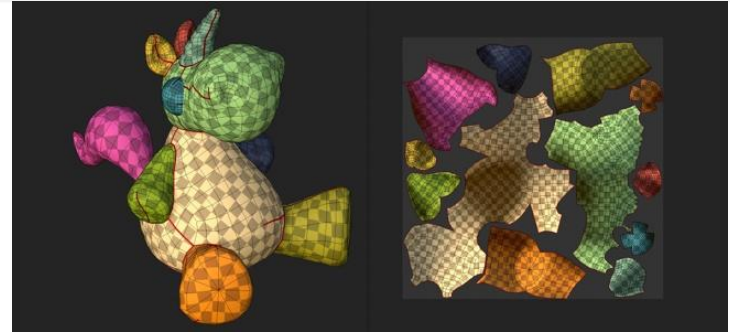


Layout-to-image



Weaknesses

- Distortion from UV-unwrapping
- Material and texture
- Perspective bias



Potential solutions in 2023

- Distortion from UV-unwrapping
 - Use super-resolution on each face
 - Larger image synthesis can be projected onto the mesh, and inpaint the missing angles
- Material and texture
 - Segment the surface, then use CLIP to choose the reasonable texture profile of the surface
- Perspective bias
 - Only use full image synthesis for ideating

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