

Connecting Visuals to Gameplay at Valve

Jason Mitchell



Introduction

- Team Fortress 2
 - Distinctive Silhouettes
 - Stylized shading
- Left 4 Dead
 - Creating a Dark, Gritty Horror experience
 - Applying lessons learned from TF2
 - Utilizing “Filmic” effects





Team Fortress 2



Left 4 Dead

Team Fortress Mod



Initial Team Fortress 2



Initial Team Fortress 2



Team Fortress 2



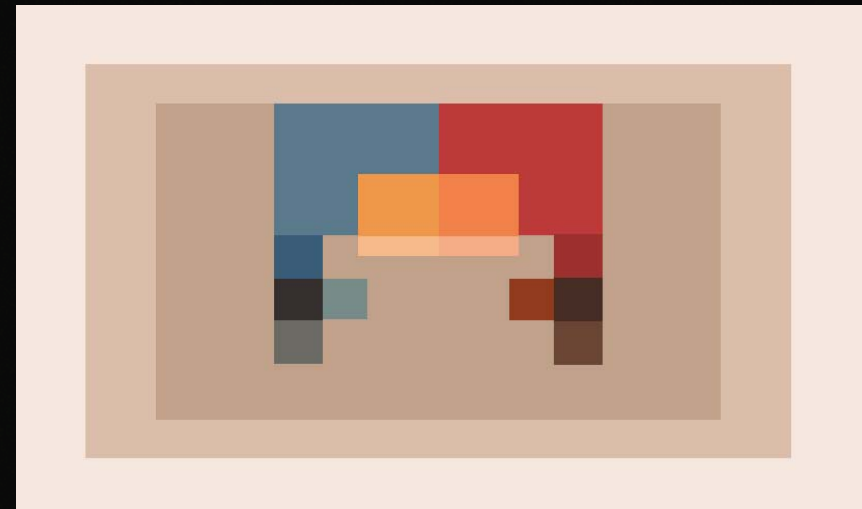
Why The Unique Visual Style?

- Gameplay
- Readability
- Branding



Read Hierarchy

- Team - *Friend or Foe?*
 - Color
- Class - *Run or Attack?*
 - Distinctive silhouettes
 - Body proportions
 - Weapons
 - Shoes, hats and clothing folds
- Selected weapon - *What's he packin'?*
 - Highest contrast at chest level, where weapon is held
 - Gradient from dark feet to light chest



Color Swatch



Early 20th Century Commercial Illustration



Dean Cornwell



J. C. Leyendecker



Norman Rockwell



J.C. Leyendecker
Thanksgiving 1628-1928

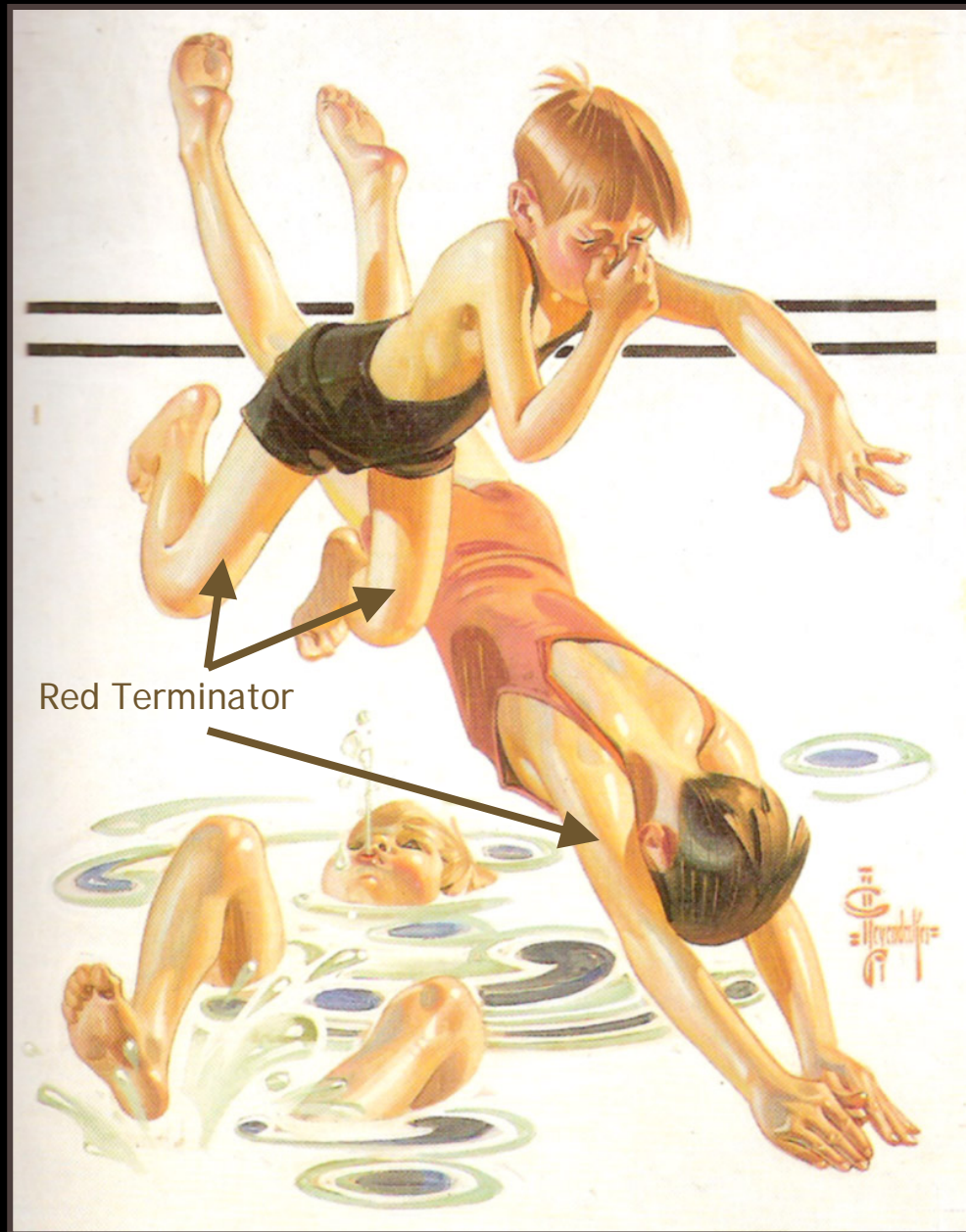


J.C. Leyendecker
Tally-Ho, 1930

Clothing Folds



J.C. Leyendecker
Arrow collar advertisement, 1929



J.C. Leyendecker
Swimmin' Hole, 1935

Rim Highlighting



Rim Highlighting



Character Creation

1. Character silhouette
2. Interior shapes
3. Model sheet
4. 3D Model
5. Character Skin
6. Final Character in game



Character Silhouette

- Building block of character design
- Identifiable at first read



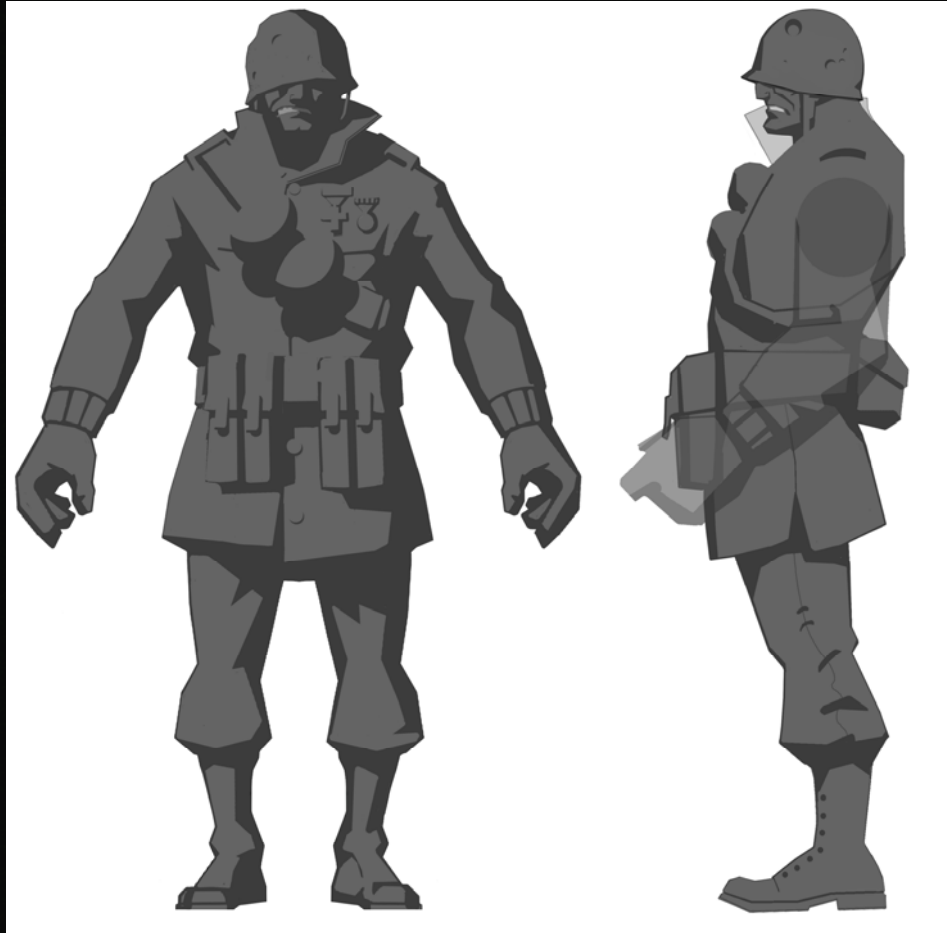
Interior Shapes

- Solving interior character design with shadow shapes
- Keep it iconic
- Work out design in three quarter pose



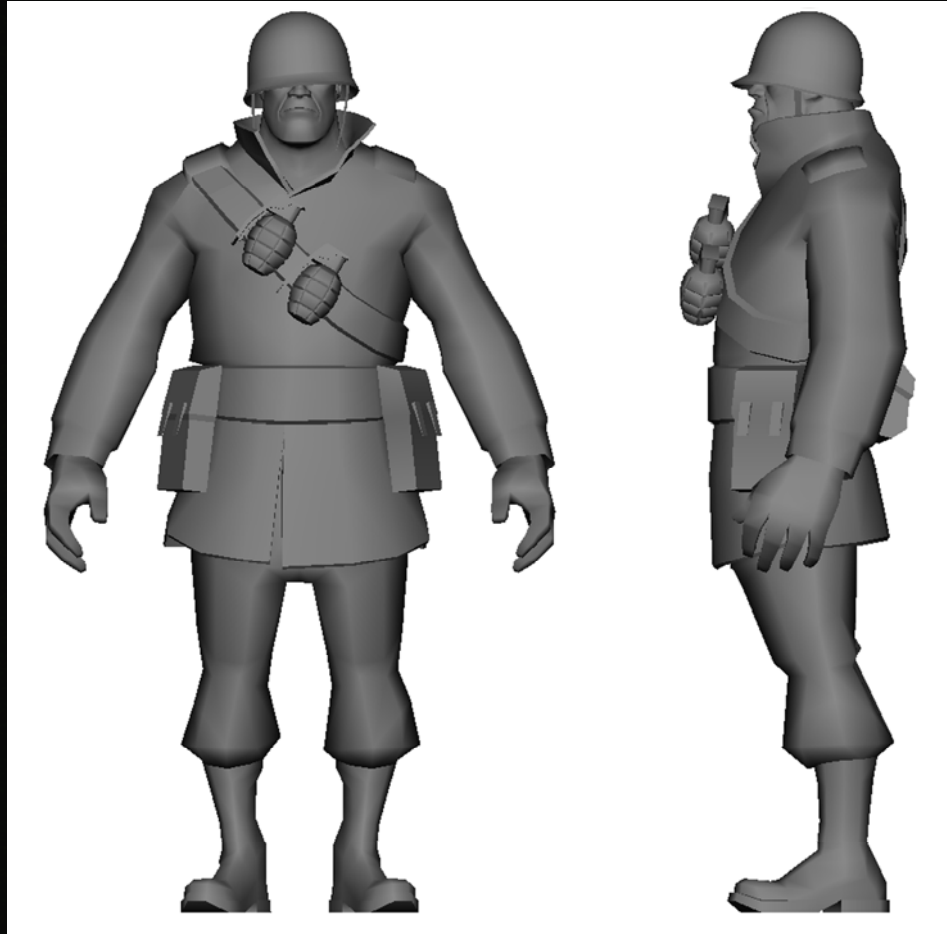
Model Sheet

- Use concept painting as guide
- Solve design problems using silhouette only
- Solve interior design with shadow shapes

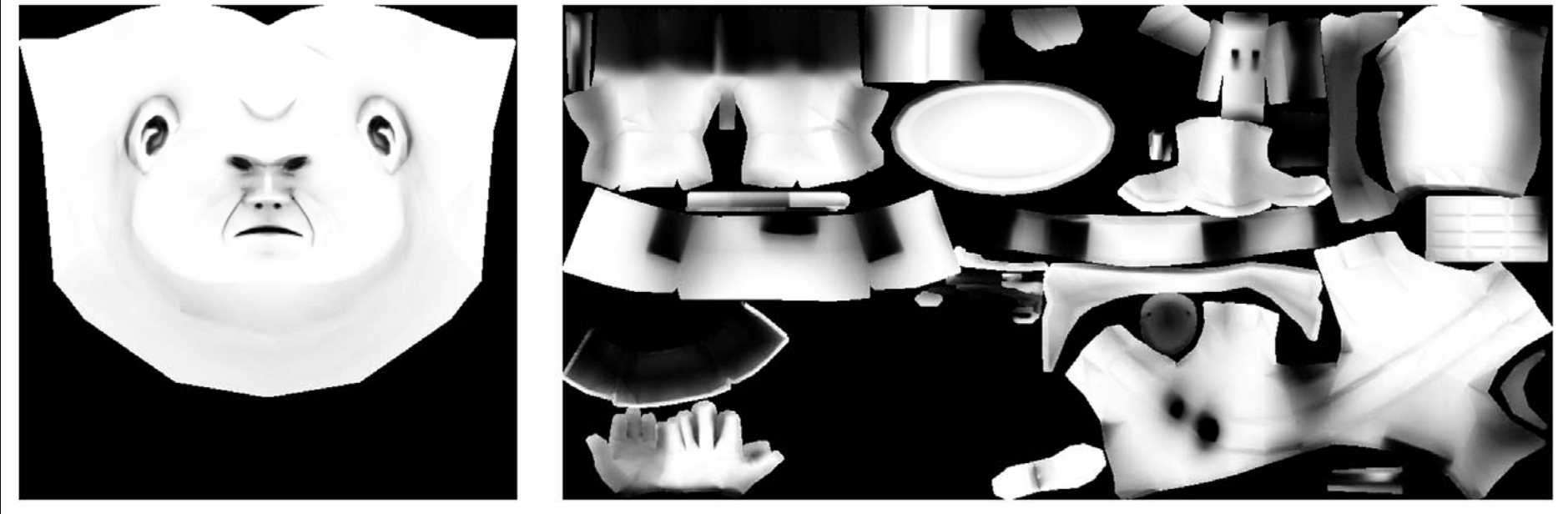


3D Model

- Match silhouette to model sheet
- Solve 3 quarter design with screenshots / paintovers
- Model with character in mind



Base Ambient Occlusion map



Character Skin

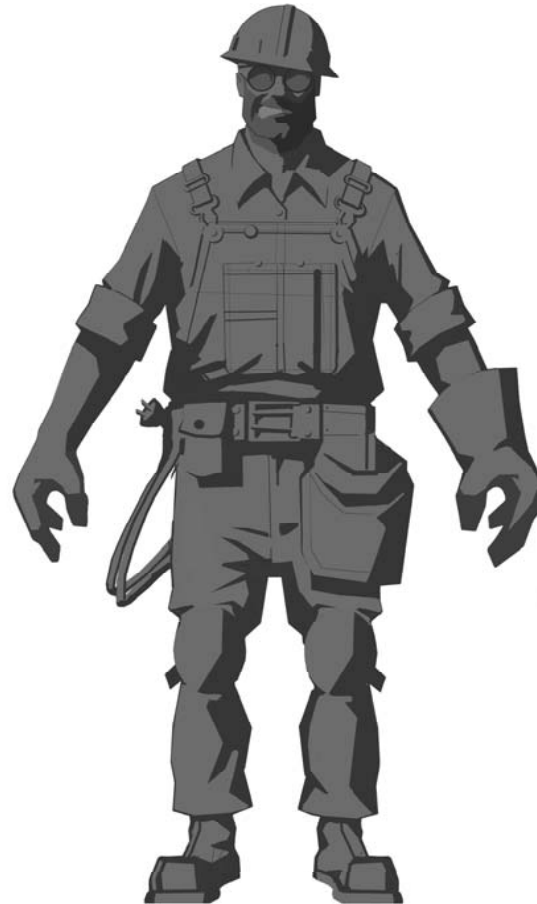


Final Character

- 3D model with texture and basic shading



Engineer Concept



Engineer model



Pyro Concept



Pyro model



Environment Design

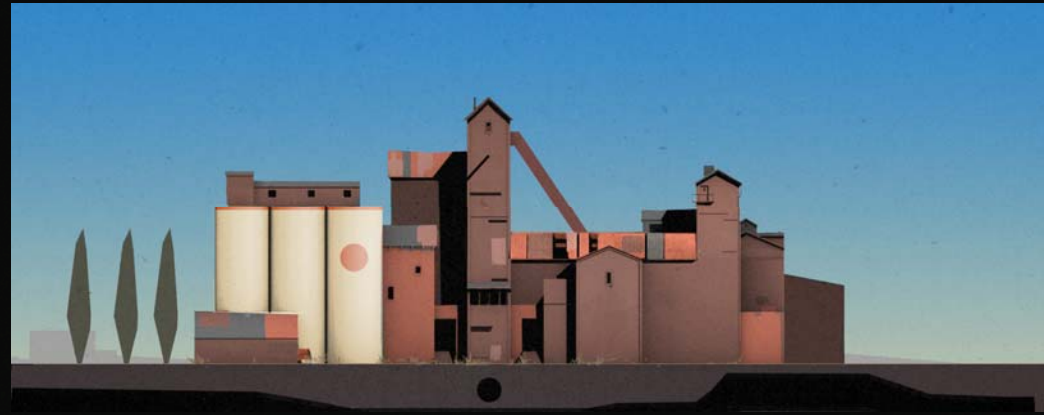
- Creating a compelling, immersive world
- Team distinction through material hue/value/saturation
 - Desaturated relative to players
- Impressionistic painterly look



Concept painting

Contrasting Team Properties

- Red
 - Warm colors
 - Natural materials
 - Angular geometry



- Blue
 - Cool colors
 - Industrial materials
 - Orthogonal forms



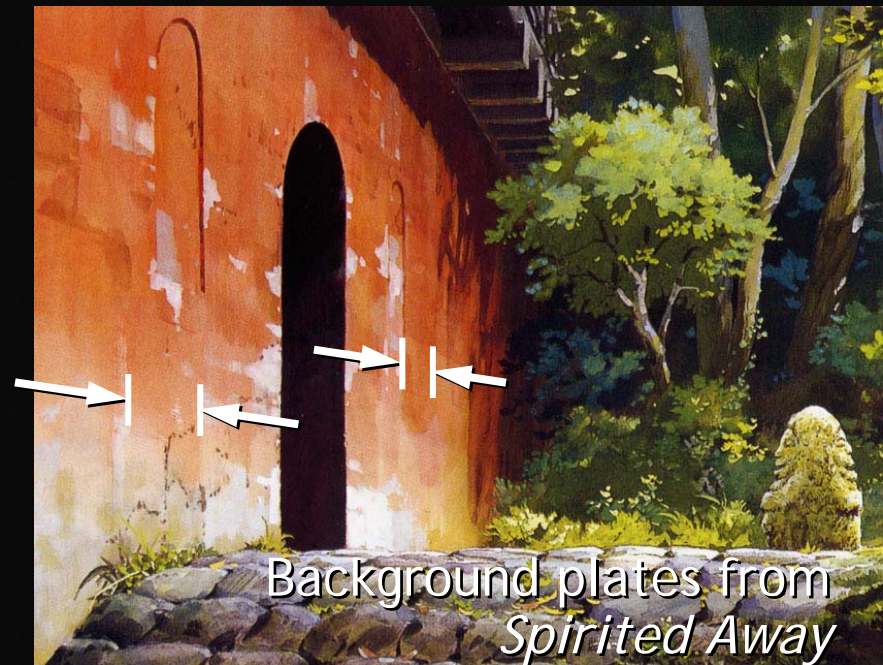
Concept paintings



Miyazaki - Brush Width Foreshortened



- Can easily imagine a 3D camera move between these 2D views of the same space



World texturing



Texture map



In-game Screenshot

World texturing



Texture map



In-game Screenshot

World texturing



Texture map



In-game Screenshot

VALVE



LEFT 4 DEAD™

L4D.COM

Introduction

- Co-op, first-person horror game
- Dynamic shared narrative
 - Experience an action movie with friends
- AI Director
 - Procedurally generated character performance, pacing, effects and music
- Shipped today!
 - (Please stay in your seats)



We Shipped Today!

- Because of Steam, there is an exact moment when the PC version of a Valve game officially ships.
- Hitting enter on a keyboard in one guy's office wasn't momentous enough for us, so we built **The Shipping Machine**
- I was here in Montreal, so I missed the party, but here are a few fun photos...



The Valve "Shipping Machine"



The Valve "Shipping Machine"



Left 4 Dead goes live!



Art Direction and Gameplay

- Dark, scary cinematic environment
- Apply lessons learned from TF2
- “Filmic” Effects
- Shaders enhance dark setting

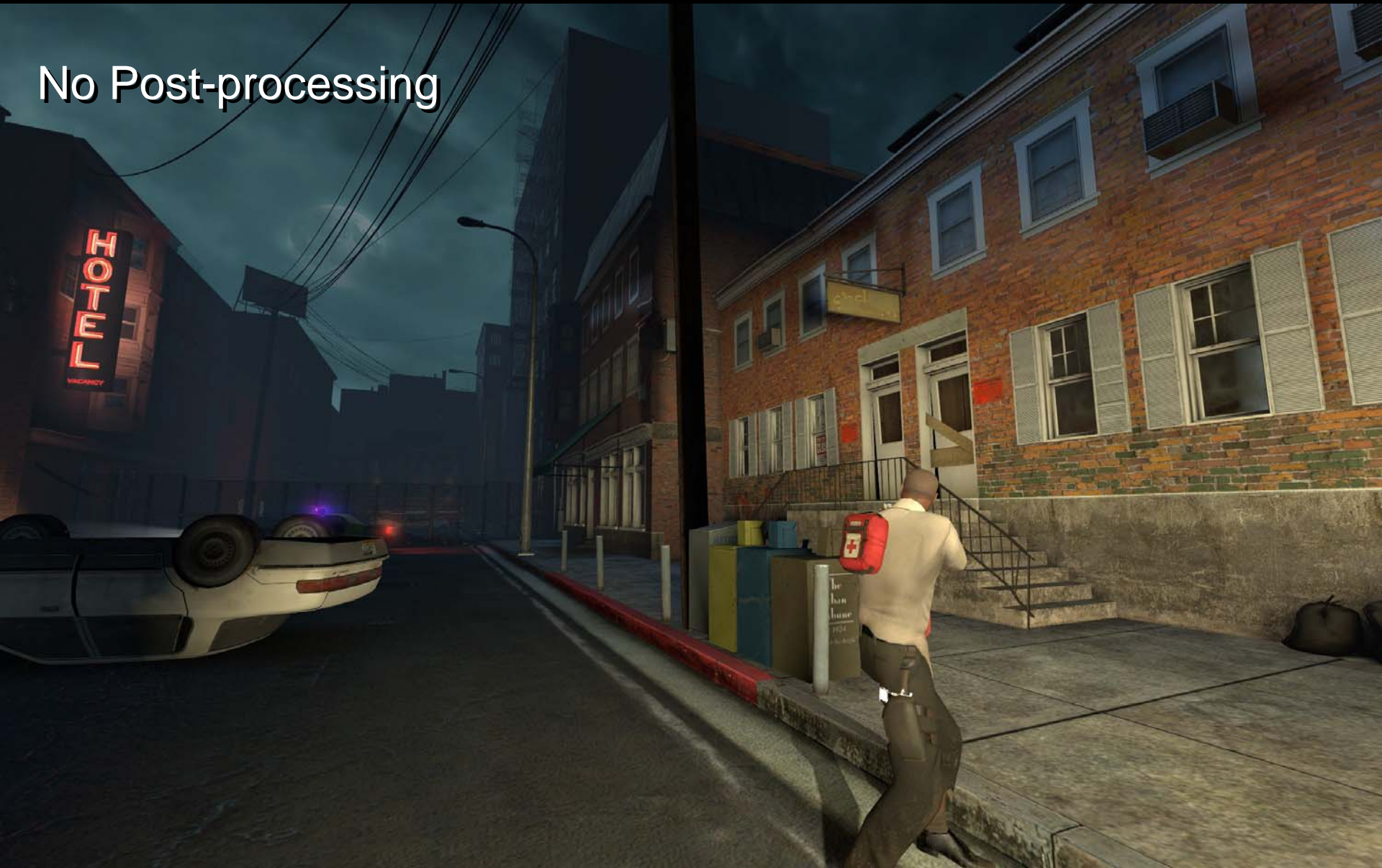


Filmic effects

- Color Correction
- Grain
- Vignette
- Local Contrast Enhancement
- Dynamically communicate game state



No Post-processing



Color Correction



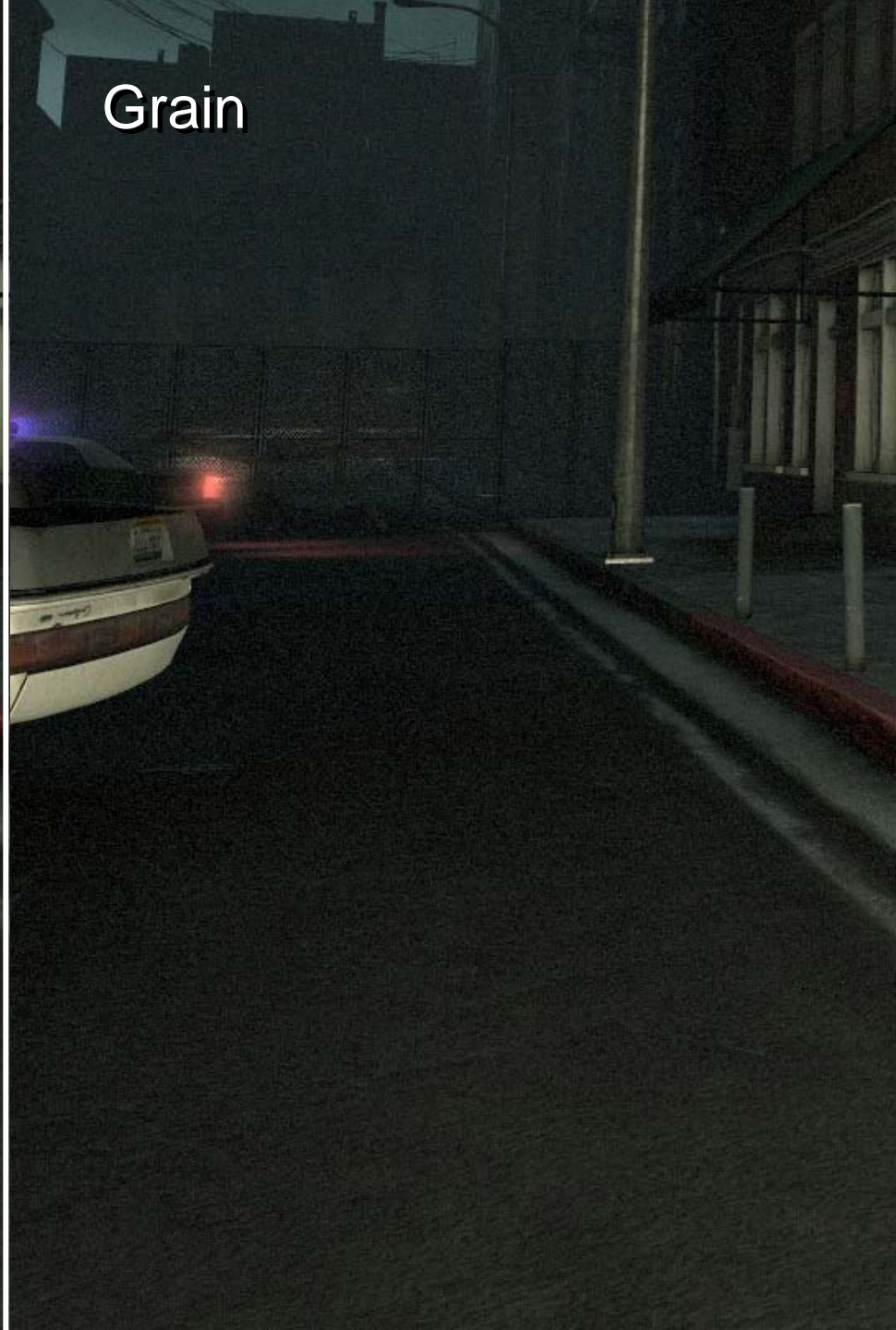
Grain



No Grain



Grain



Before Vignette

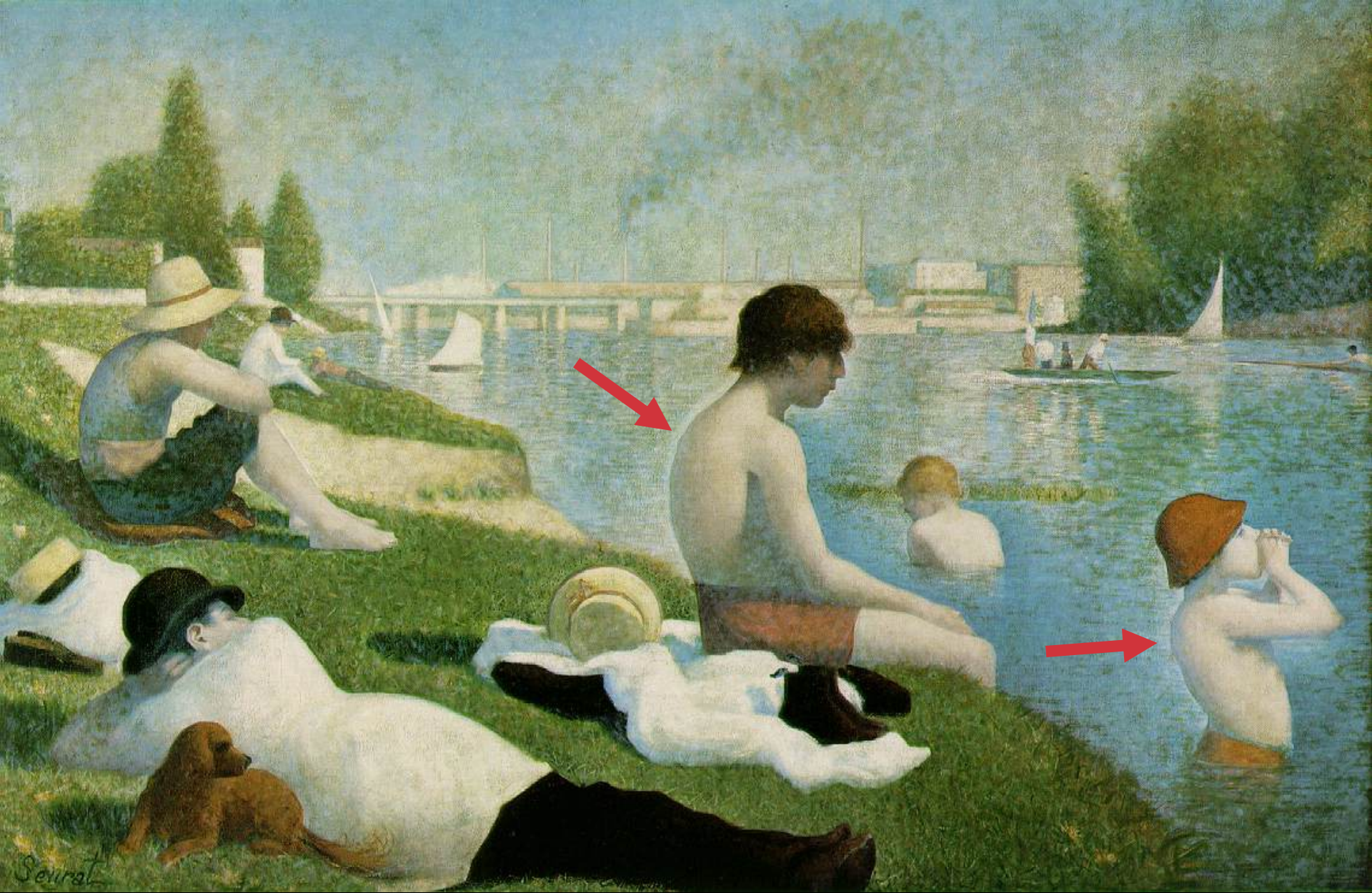


Vignette



Local Contrast





Bathers at Asnières by George Seurat

Filmic Effects OFF



Filmic Effects ON



Normal Stress



High Stress



Hunter Pounce



Normal State



Third Strike



Lighting for Darkness

- Support fiction
 - Fires
 - Headlights of abandoned vehicles
- Aid navigation
 - Players tend to follow the light
- Importance of silhouette
- Player as light source
 - Flashlight tied to gameplay



Too many areas of contrast



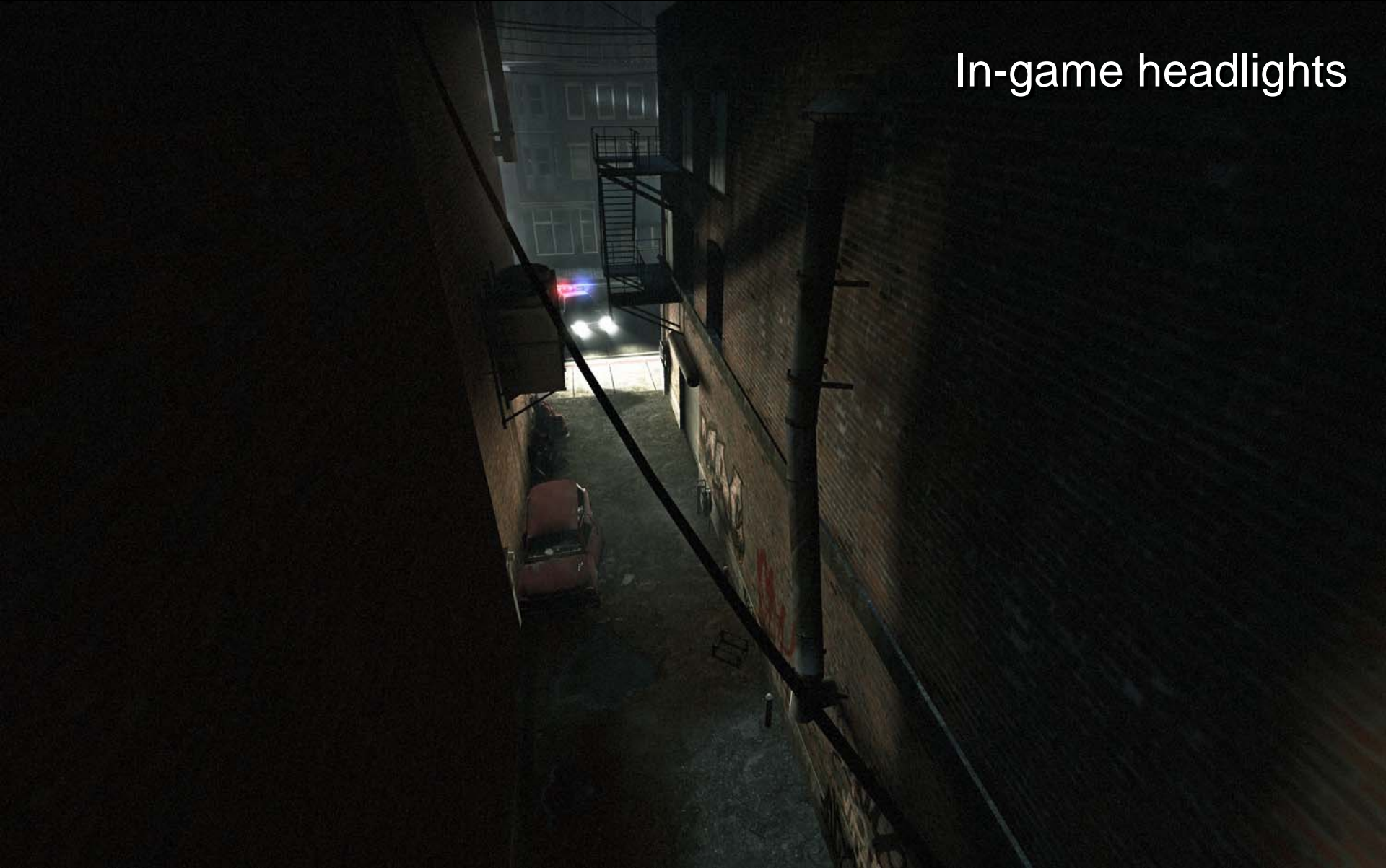
Early production screenshot

Simplified lighting



Final look

In-game headlights



In-game headlights



Smoking the Set

- Separate foreground from background
 - Fog
 - Light colored fog in dark areas to contrast with silhouettes of infected in mid-ground
 - Particles
 - Adds atmosphere and helps accentuate silhouettes of infected against lighter particles

Black Fog



Light Fog



Without particles



With particles



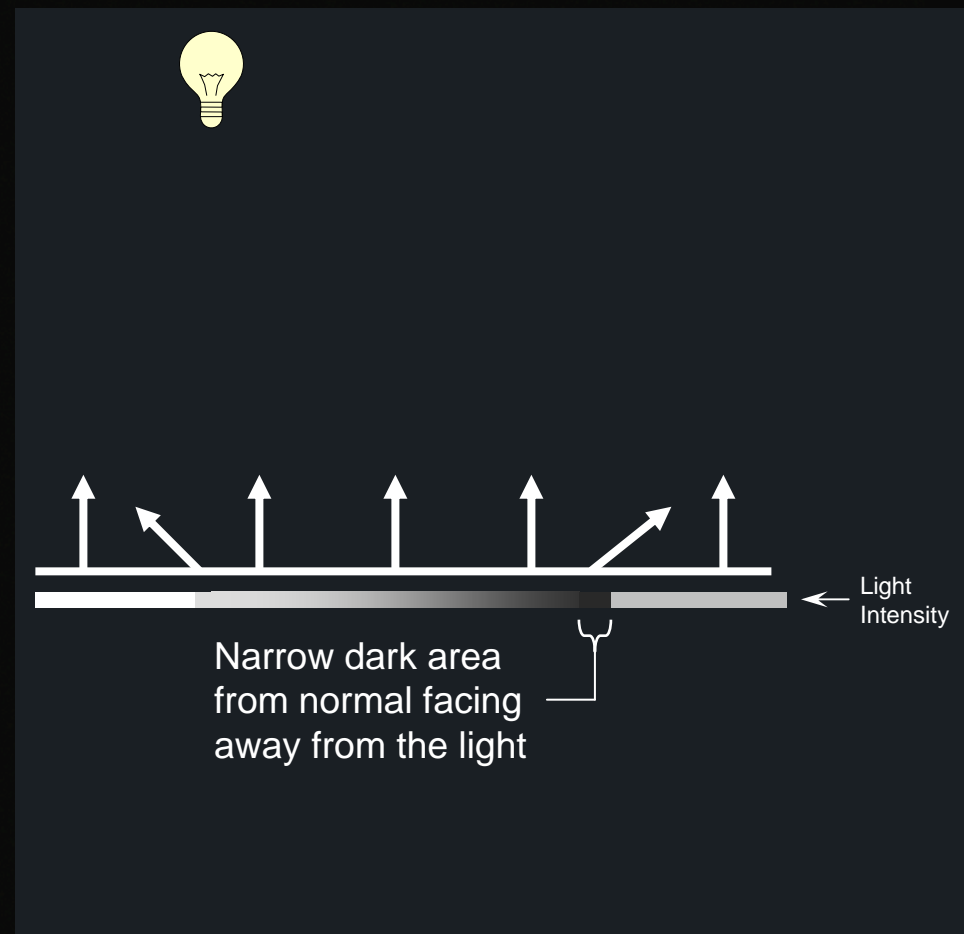
Reload, Shove & Muzzle Flash

- Player is the light source
- Increases drama and immersion
- Flashlight is attached to the weapons
 - Reloading
 - Shoving
 - Muzzle flash
- Encourages players to coordinate actions



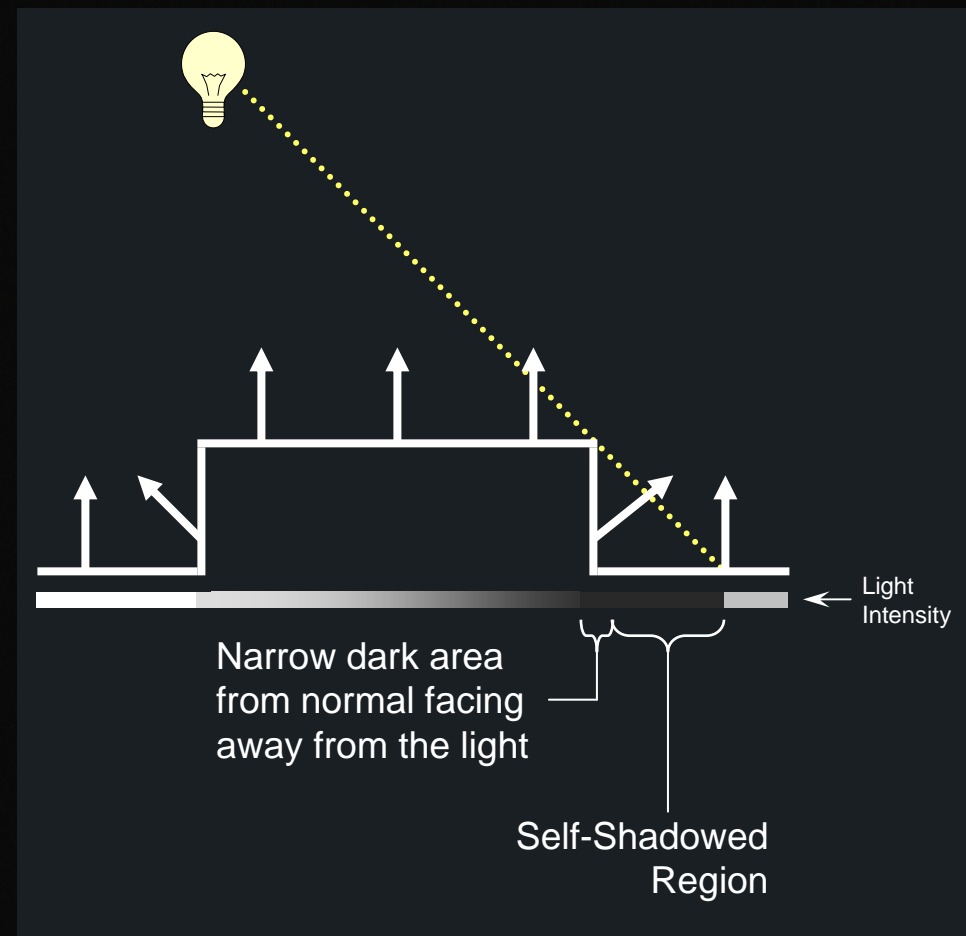
Traditional Normal Mapping

- Traditional normal mapping locally alters surface orientation, causing detailed lighting effects



Self Shadowed Normal Mapping

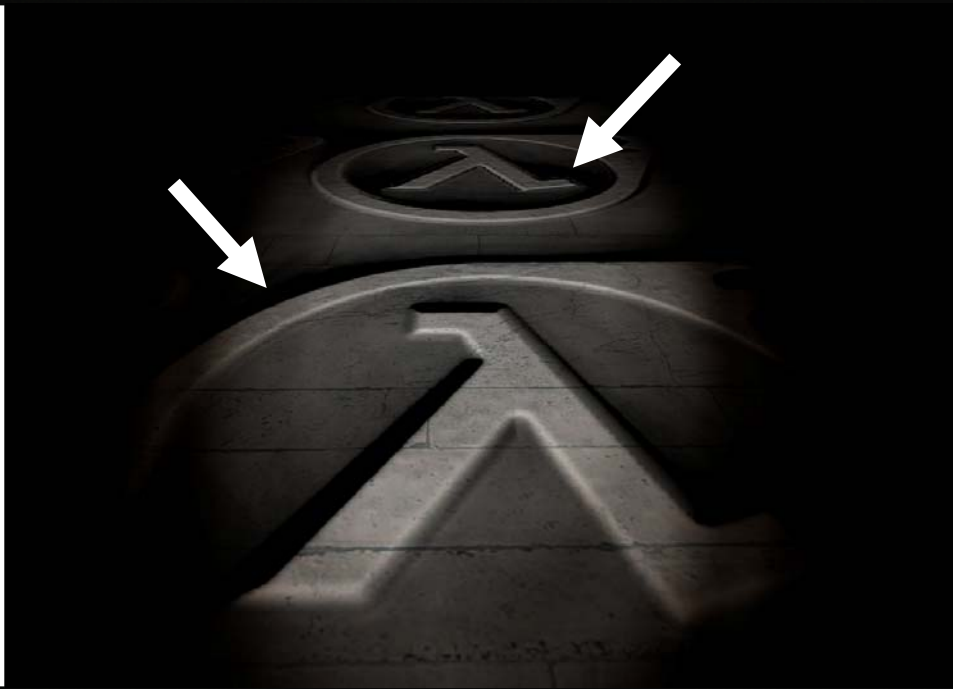
- Self Shadowed Normal Mapping incorporates local self-shadowing information for greater surface richness
- Reacts to lighting from radiosity as well as dynamic lights in the scene, such as the player's flashlight
- Refactoring our shader code, this turns out to be free



Self Shadowed Normal Mapping Example



No Self-shadowing



With Self-shadowing

Wet Environments

- Film technique
 - Wash down the set to get that “movie dark” look
 - Film Noir
- Adds details to dark settings while still feeling dark



Reference Photograph

In-game screenshot



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