

Corrective Displacement Maps for Facial Expressions

Alias 3December 2005, London

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Evolution of a Character



Character Design: A Recipe for Disaster

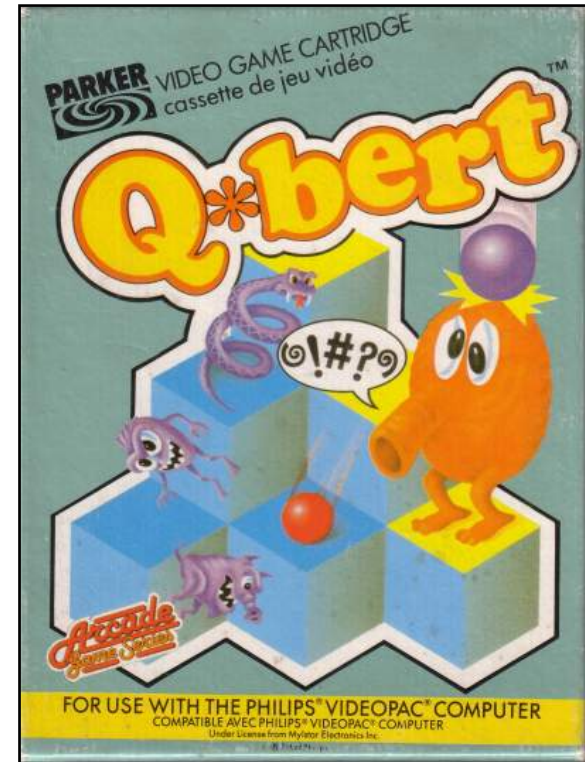


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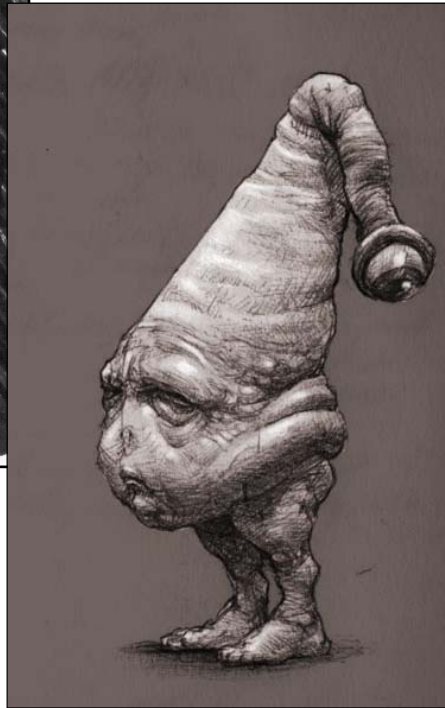
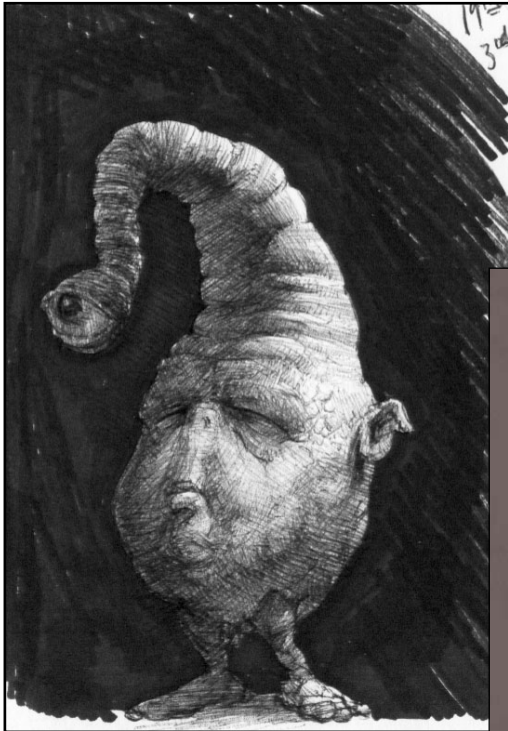


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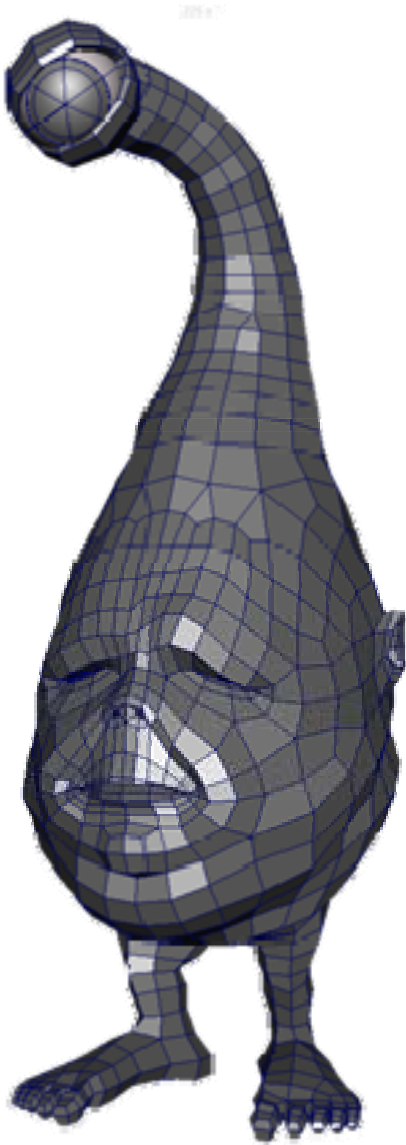
The Result



How Rfm helped create this monstrosity...

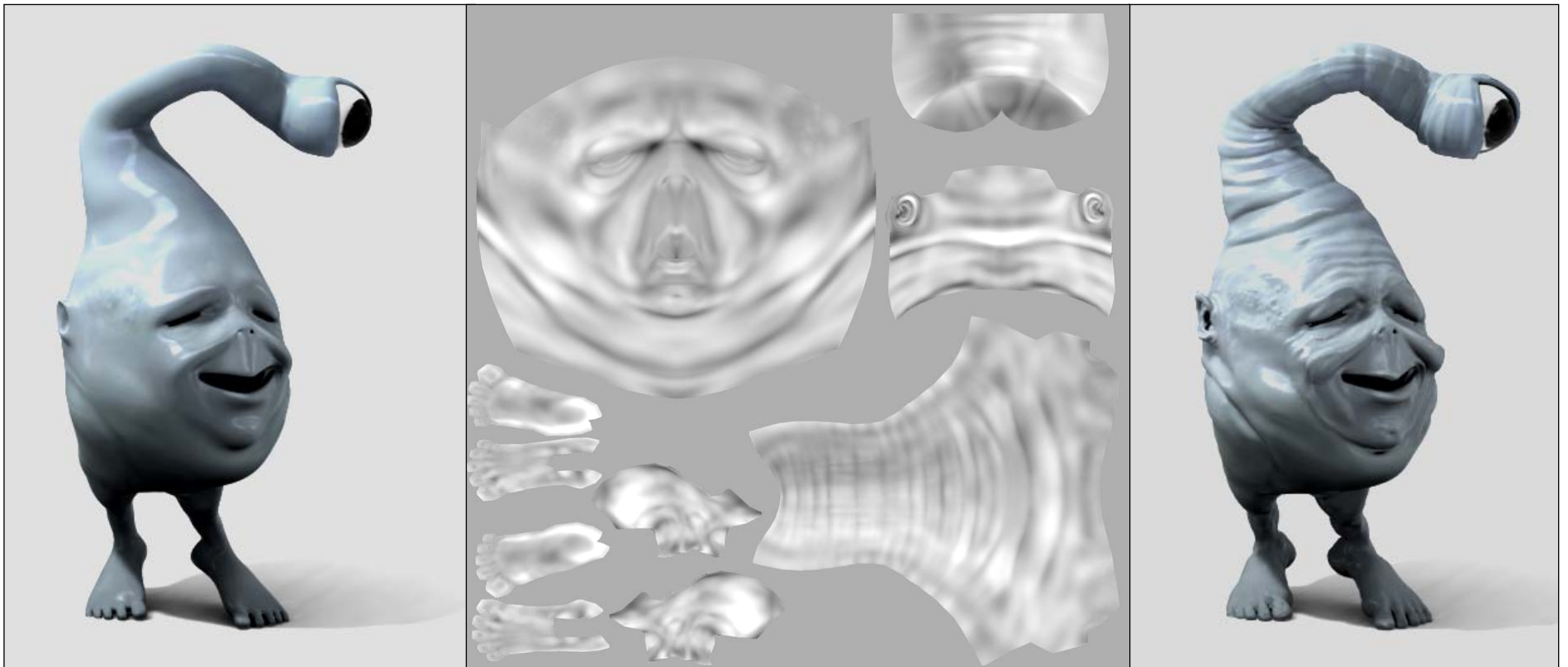


From the Ground Up...

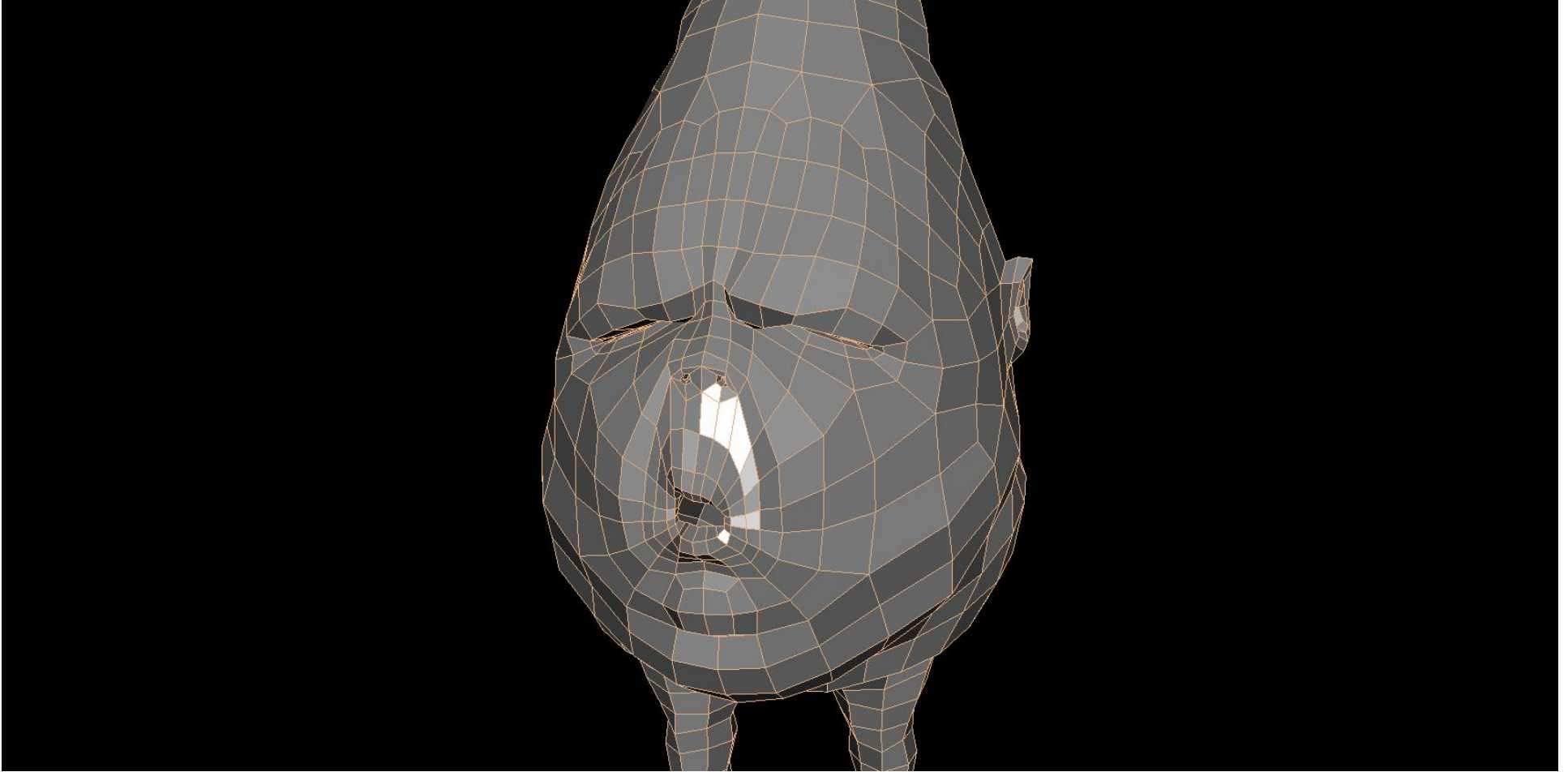


Where the Magic Is:

Displacement, Displacement, Displacement



Adding Facial Expressions



Blendshapes + Displacement

The Idea: piggyback
corrective displacement
on blendshapes

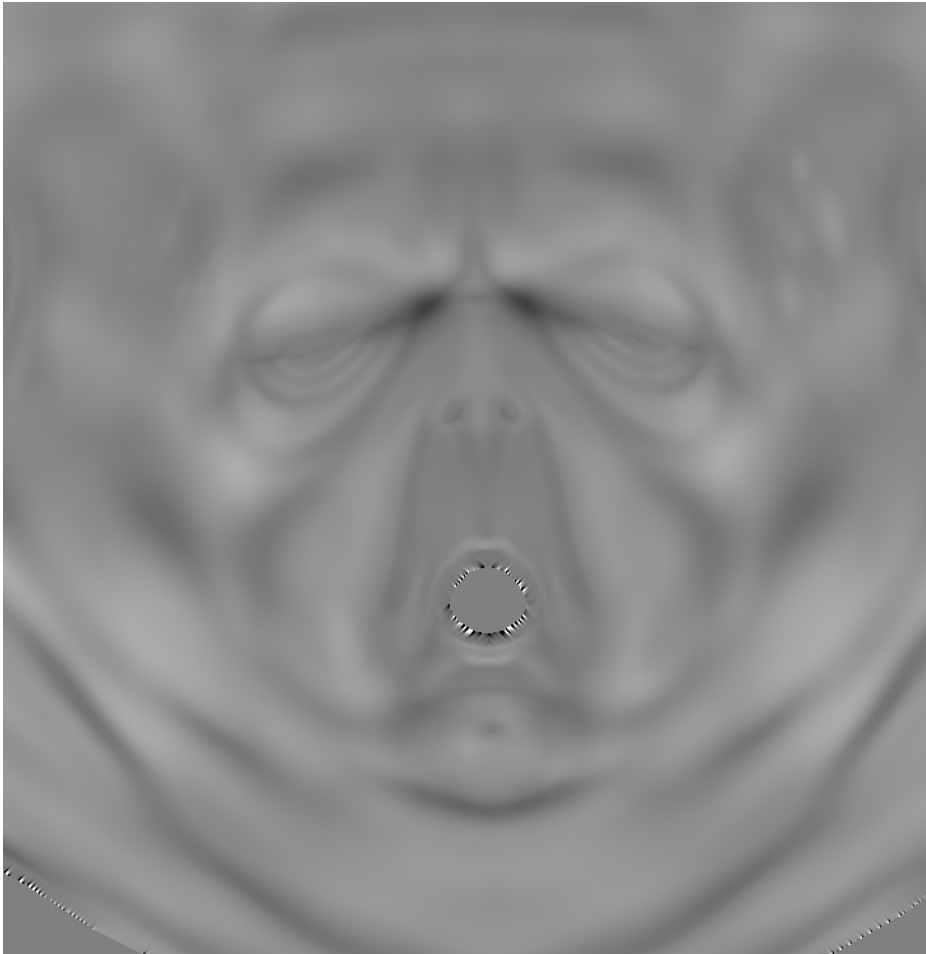
The Result:

- Mesh independent deformations
- High-resolution facial expressions
- Sculptural control over corrections

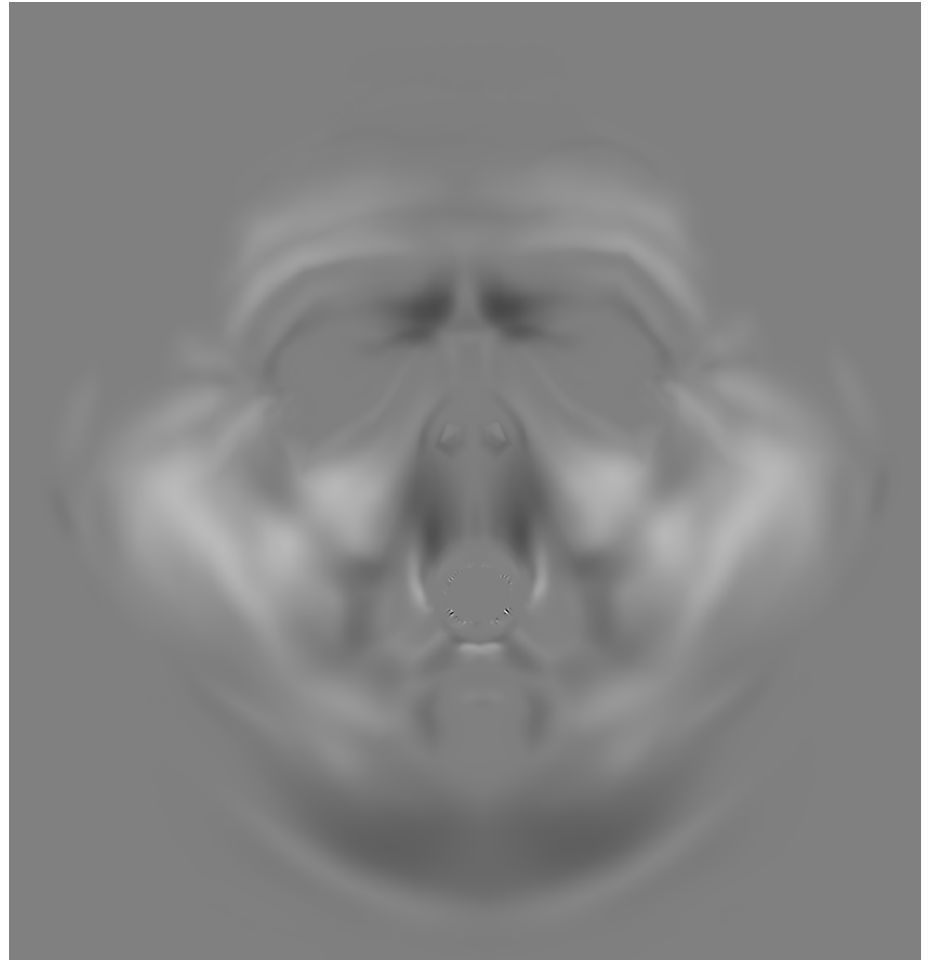


Visually...

base displacement



corrective maps



The authoring pipeline

(not for the faint of heart)

- Maya
- Zbrush
- Shake
- Maya
- Renderman

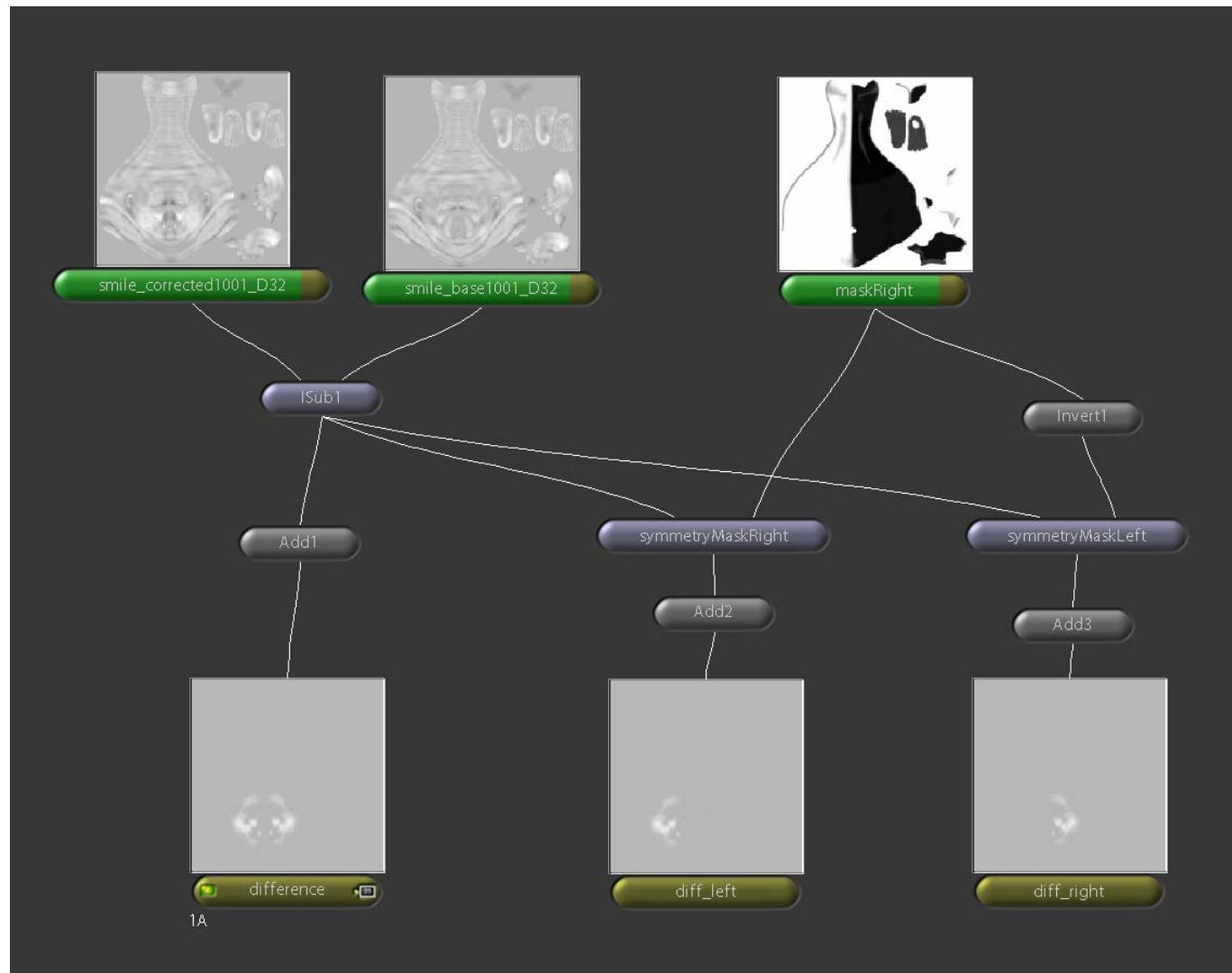


The Procedure:

Modeling Expressions in Zbrush

- Create base displacement map
- Lo-Res Blendshapes
- Export OBJ
- Subdivide OBJ
- Apply base displacement
- Export initial 32-bit map
- Sculpt corrections
- Export modified 32-bit map
- Difference in Shake

Differencing Maps: Shake

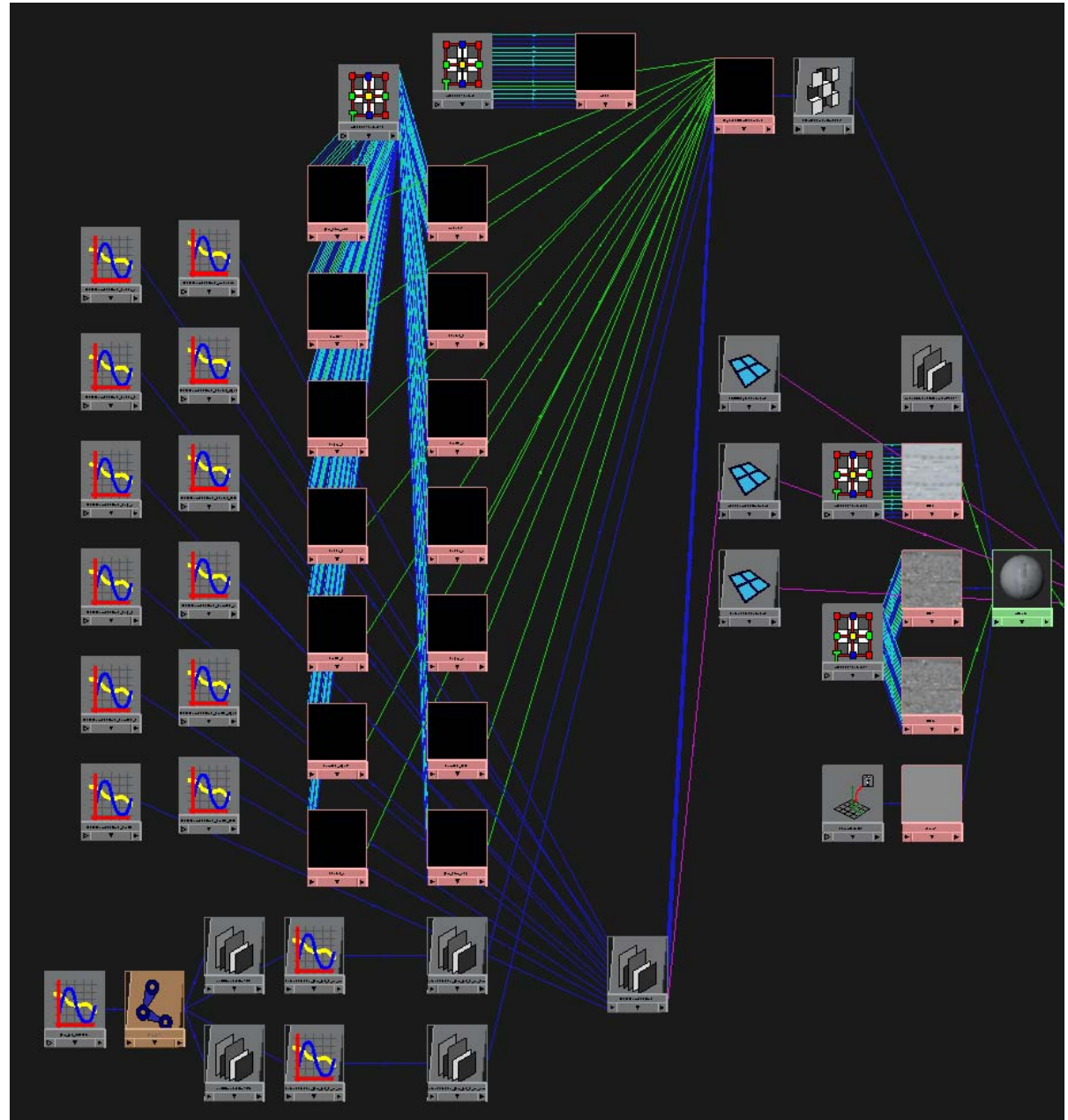


The Technique:

Bringing it All Together: Maya

- Setup the blendshapes
- Layer displacements with layered texture
- Displacement centering
- Connecting Alphas
- RENDERING

Hypershade Abuse

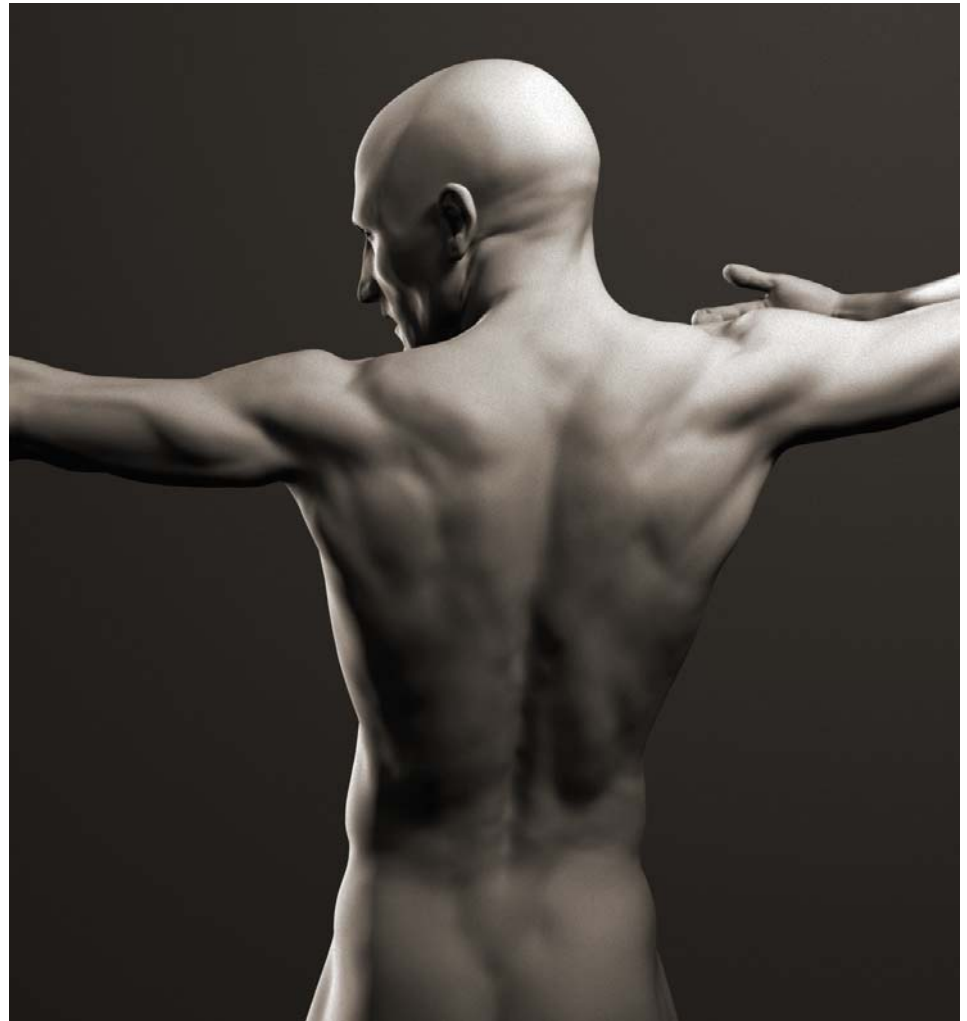


Results...



Extensions

- Correcting joint deformation
- Pose-Space Deformation
- Scriptable setup pipeline (python, perl, etc)



Extensions

A little animation test...



Questions?

Contact

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