Single 3D face reconstruction
Facial expression reconstruction and modification
Using only Internet photos (no 3D priors)

Internet-based Morphable Model
Ira Kemelmacher-Shlizerman
University of Washington

Acknowledgments: Many thanks to Supasorn Suwajanakorn for creating the videos

**Internet face photos**
Each set of photos is called a cluster

**Within cluster dense correspondence**
Averages over ~300 photos of different people per cluster. Flow aligned photos computed using collection flow [1]. Note how sharp the flow-aligned averages are.

**Across cluster dense correspondence**
Examples of “warped to neutral” averages:

**Given a new input image...**

**Single View 3D Reconstruction Algorithm**

**Changing expression in shape, texture, and pose**

**Compare to classical morphable model**