Generative Face Completion
Yijun Li¹, Sifei Liu¹, Jimei Yang², Ming-Hsuan Yang¹
¹University of California, Merced     ²Adobe Research
Project webpage: http://bit.ly/FaceCompletion

- **Framework**
  - Globally and locally plausible and consistent face completion

- **Loss functions:**
  - $L_r$: Reconstruction loss
  - $L_{a1}$: Local adversarial loss
  - $L_{a2}$: Global adversarial loss
  - $L_p$: Parsing regularization

- **Training scheme:**
  - Trained on the CelebA dataset [Liu et al., 2015], cropped and aligned version
  - $\text{ImageSize} = 128 \times 128$, $\text{MaskSize} = 64 \times 64$, mask randomly positioned
  - Parsing network is pretrained on the Helen dataset [Le et al., 2012]

- **Qualitative results:**
  - In each panel from left to right: original, masked, completion

- **Comparisons**
  - Original, Masked, M1, M2, M3, M4, M5

- **Evaluations on different square mask sizes**

- **Three-stage training scheme**
  - Train with $L_r$
  - Then, with $L_r + L_{a1}$
  - Finally, with $L_r + L_{a1} + L_{a2} + L_p$

- **Other comparisons**
  - $M1$, $M2$, $M3$, $M4$, $M5$
  - $L_r$, $L_{a1}$, $L_{a2}$, $L_p$
  - + blending