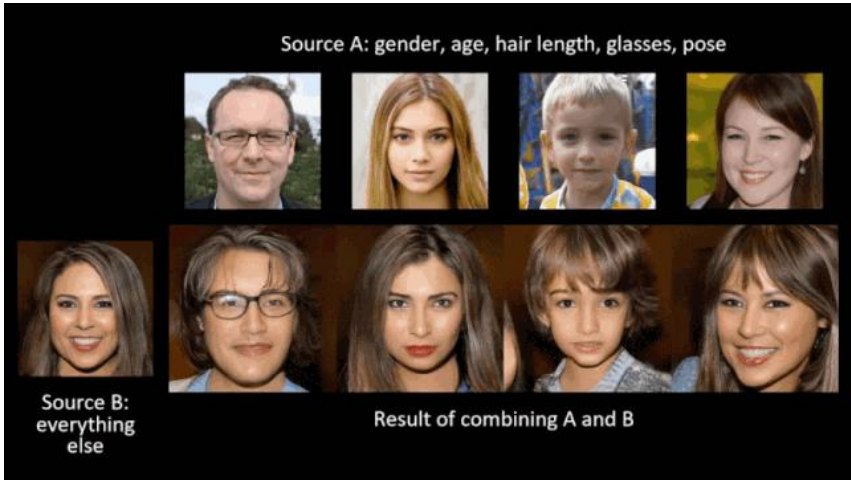
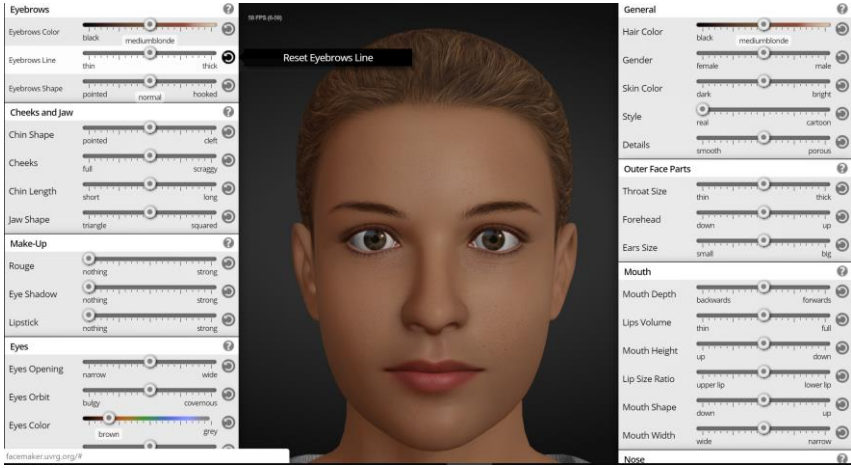
Parameterize the Generation of Realistic Faces (Niels)

- Recent work uses machine learning to generate realistic faces from noise vectors [1, 2]
- One can move through the latent space by changing the noise vector but fine-grained control is not possible [1, 2]
- Facemaker, allows fine-grained control but does not generate realistic images [3, 4]





[1] Karras, T., Aila, T., Laine, S., & Lehtinen, J. (2017). Progressive growing of gans for improved quality, stability, and variation. arXiv preprint arXiv:1710.10196.

[2] Karras, T., Laine, S., & Aila, T. (2018). A style-based generator architecture for generative adversarial networks. arXiv preprint arXiv:1812.04948.

[3] Schwind, V., Wolf, K., & Henze, N. (2017). FaceMaker—A Procedural Face Generator to Foster Character Design Research. In Game Dynamics (pp. 95-113). Springer, Cham.

Schwind, V., & Henze, N. (2018, October).

[4] Schwind, V., Henze, N. (2018). Gender-and Age-related Differences in Designing the Characteristics of Stereotypical Virtual Faces. In Proceedings of the 2018 Annual Symposium on Computer-Human Interaction in Play (pp. 463-475). ACM.

Parameterize the Generation of Realistic Faces (Niels)

- Step 1: Generate Paired Samples
  - Get Facemaker
  - Provide participants with high-quality faces
  - Asks them to generate matching artificial faces using Facemaker
- Step 2: Train Network using Paired Samples
  - Fine-tune existing network for generating realistic faces
  - Comparing different approaches
  - Combine resulting network with Facemaker
- Step 3: Model Validation
  - Conduct a study that asks participants to re-generate unseen faces
  - Quantitative and qualitative comparison of generated and realistic faces