

*I recently received a Ph.D. in Computer Vision from Telecom Paris. My thesis topic is “Learning latent representations for facial image and video editing”. My research interests lie in the general area of Computer Vision and Machine Learning. Specifically on the topics of Face Editing, Video Editing, Latent Space Interpretation and Generative Modeling.*

## EDUCATION

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### Telecom Paris

Ph.D. in Computer Vision

Thesis: [Latent representations for facial image and video editing](#)

Advisor: Yann Gousseau , Alasdair Newson , Pierre Hellier and Gilles Puy

Paris, France

Nov 2018 - Apr 2022

### Mines ParisTech

M.S. Applied Mathematics

Paris, France

Sep 2015 - Jul 2018

### Fudan University

B.S. Theoretical and Applied Mechanics (major) & Economics (minor)

– National Scholarship (top 1%, 2013)

Shanghai, China

Sep 2011 - Jul 2015

## PUBLICATIONS

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- [1] M. Shukor, B. B. Damodaran, **X. Yao**, and P. Hellier, “Video coding using learned latent gan compression”, in *Proceedings of the 30th ACM International Conference on Multimedia*, 2022, pp. 2239–2248.
- [2] M. Shukor, **X. Yao**, B. B. Damodaran, and P. Hellier, “Semantic unfolding of stylegan latent space”, in *2022 IEEE International Conference on Image Processing (ICIP)*, IEEE, 2022, pp. 221–225.
- [3] **X. Yao**, “Latent representations for facial images and video editing”, Theses, Institut Polytechnique de Paris, 2022.
- [4] **X. Yao**, A. Newson, Y. Gousseau, and P. Hellier, “A style-based gan encoder for high fidelity reconstruction of images and videos”, *European Conference on Computer Vision (ECCV)*, 2022.
- [5] A. Caillon, A. Ozerov, Q. K. N. Duong, G. Puy, and **X. Yao**, “Systems and methods for sound conversion”, *Worldwide Patent WO2021028236A1*, 2021.
- [6] **X. Yao**, A. Newson, Y. Gousseau, and P. Hellier, “A latent transformer for disentangled face editing in images and videos”, in *Proceedings of the IEEE/CVF International Conference on Computer Vision (ICCV)*, 2021, pp. 13 789–13 798.
- [7] **X. Yao**, A. Newson, Y. Gousseau, and P. Hellier, “Learning non-linear disentangled editing for stylegan”, in *2021 IEEE International Conference on Image Processing (ICIP)*, IEEE, 2021, pp. 2418–2422.
- [8] **X. Yao**, G. Puy, A. Newson, Y. Gousseau, and P. Hellier, “High resolution face age editing”, in *2020 25th International Conference on Pattern Recognition (ICPR)*, IEEE, 2021, pp. 8624–8631.
- [9] **X. Yao**, G. Puy, and P. Patrick, “Photo style transfer with consistency losses”, in *2019 IEEE International Conference on Image Processing (ICIP)*, 2019, pp. 2314–2318.

## PROJECTS

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- **2022 ECCV** – A style-based gan encoder for high fidelity reconstruction of images and videos [\[Paper\]](#) [\[Code\]](#)
- **2021 ICCV** – A latent transformer for disentangled face editing in images and video [\[Paper\]](#) [\[Code\]](#)
- **2020 ICPR** – High resolution face age editing” [\[Paper\]](#) [\[Code\]](#)

## EXPERIENCE

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### Entrepreneur First

Paris, France

Founder in residence - EFPA8

Mar 2022 - Aug 2022

Build startups from scratch: ideation, market research, proof of concept. Explored the following ideas:

- 3D modeling for real objects from photos for e-commerce website display and digital marketing use.
- An accurate virtual fitting room that allows users to compose their own looks.

### InterDigital (Technicolor)

Rennes, France

Researcher

Nov 2018 - Feb 2022

*During my PhD I also worked as a researcher at InterDigital research lab. I worked on the project “PAN”, in collaboration with the VFX artists at Technicolor creative studio. The main objective of this project is to automate the facial attribute editing tasks in high resolution videos for film post-production use.*

- Proposed an encoder architecture that projects an existing image to the latent space of a style-based GAN and achieves a more accurate and stable inversion.
- Proposed the first video manipulation pipeline to edit facial attributes in high resolution videos.
- Proposed an algorithm for disentangled face editing in real images via the latent space of a style-based GAN.
- Proposed a deep learning based method for face aging/de-aging task, outperforming state-of-the-art.

### Horizon Robotics

Beijing, China

Research Intern

Jul 2018 - Oct 2018

- Explored multi-modal method for voice separation based on sound and images, literature review on speech separation and lip reading, implement the state-of-the-art algorithm and achieve two-person speech separation.

### Technicolor

Rennes, France

Research Intern (Supervisor: Dr. Patrick Pérez and Dr. Gilles Puy)

Jan 2018 - Jun 2018

- Proposed a novel approach for photo-realistic style transfer. We use only two photos to train the network and the pretrained network is able to transfer the learnt style on photos not viewed at training time.

### Criteo

Munich, Germany

Business Intelligence Analyst Intern

Dec 2016 - Jun 2017

- Developed a feasible model to calculate the maximum potential benefit for each corporate client; Created visual analytic charts based on industry seasonality and annual returns, to provide budget forecast for corporate clients.

## SKILLS

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- Python, C++, R, Matlab, PyTorch, Tensorflow, Keras, MXNet, SQL, VBA, MS Office, Tableau Desktop, Deep Learning, Machine Learning, Image Processing, Generative Modeling, Data Analysis, GAN

## LANGUAGES

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- **English:** Full professional proficiency
- **French:** Full professional proficiency
- **Mandarin:** Native speaker

## EXTRACURRICULAR ACTIVITIES

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- China Horizon Forum - VP Enterprise 2016
  - Contacted enterprises for China Horizon Forum, a job fair for Chinese students in France
- Volleyball Association of Fudan University - President 2013
  - Organized volleyball competitions, including an East China Volleyball competition with 18 universities participating
  - Led the team to win “Star Association of Shanghai”, the highest honor for university associations in Shanghai