SHEN Xi

Education

2017–2021 **Ph.D.**, *École des Ponts ParisTech* , Paris.
Computer Vision, Object Discovery, Self-supervised / Weakly-supervised learning, advised by Prof. Mathieu Aubry

2013–2017 **Engineering programme**, *École des Ponts ParisTech*, Paris.
Department of Computer Science and Applied Mathematics

2016–2017 **Master**, *École Normale Supérieure Paris-Saclay*, Paris.
First-class honors (Mention très bien)
Mathematics, Computer Vision and Machine Learning (Mathématiques, Vision, Apprentissage)

2009–2013 **Dual Bachelor**, *Université Claude Bernard Lyon & Wuhan University*, Lyon & Wuhan.
First-class honors (Mention très bien)
Mechanics & Physics

Experience

Tencent AI Lab

2021–present **Senior Researcher**, Shenzhen.
Deep Learning and Computer Vision

Dassault Systemes

2017–2017 **Research Engineer**, *Intern*, Vélizy.
Deep Learning for Image Denoising

Mitex (formerly A2iA)

2015–2016 **Research Engineer**, *Intern*, Paris.
Chinese Handwritten & Printed Text Recognition with Recurrent Neural Network

Languages

Chinese Native **French** Fluent **English** Fluent

Skills

Python (Pytorch), C++, Matlab, Latex

See my resleased code on GitHub: http://github.com/XiSHEN0220

Publications

red indicates serving as the corresponding author

Conference

Oumayma Bounou, Tom Monnier, Ilaria Pastrolin, **Shen, Xi**, Christine Benevent, Marie-Françoise Limon-Bonnet, François Bougard, Mathieu Aubry, Marc Smith, Olivier Poncet, et al. A web application for watermark recognition. *Journal of Data Mining and Digital Humanities*, 2020. **Web application:** https://filigranes.inria.fr/#/filigrane-search.

Yingyi Chen, Xi Shen, Shell Xu Hu, and Johan AK Suykens. Boosting co-teaching with compression regularization for label noise. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshop (CVPRW)*, 2021. **Code:** https://github.com/yingyichen-cyy/Nested-Co-teaching.

Shell Xu Hu, Pablo G Moreno, Yang Xiao, **Shen, Xi**, Guillaume Obozinski, Neil D Lawrence, and Andreas Damianou. Empirical bayes transductive meta-learning with synthetic gradients. In *International*

Conference on Learning Representations (ICLR), 2019. **Code:** https://github.com/hushell/sib_meta_learn.

Ryad Kaoua, **Shen, Xi**, Alexandra Durr, Stavros Lazaris, David Picard, and Mathieu Aubry. Image collation: Matching illustrations in manuscripts. In *International Conference on Document Analysis and Recognition (ICDAR)*, 2021. **Project page:** http://imagine.enpc.fr/~shenx/ImageCollation/.

Shen, Xi, François Darmon, Alexei A Efros, and Mathieu Aubry. Ransac-flow: generic two-stage image alignment. In *European Conference on Computer Vision (ECCV)*, 2020. **Project page:** http://imagine.enpc.fr/~shenx/RANSAC-Flow/.

Shen, Xi, Alexei A Efros, and Mathieu Aubry. Discovering visual patterns in art collections with spatially-consistent feature learning. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2019. **Project page:** http://imagine.enpc.fr/~shenx/ArtMiner/.

Shen, Xi and Ronaldo Messina. A method of synthesizing handwritten chinese images for data augmentation. In *International Conference on Frontiers in Handwriting Recognition (ICFHR)*, 2016.

Shen, Xi, Ilaria Pastrolin, Oumayma Bounou, Spyros Gidaris, Marc Smith, Olivier Poncet, and Mathieu Aubry. Large-scale historical watermark recognition: dataset and a new consistency-based approach. In *International Conference on Pattern Recognition (ICPR)*, 2020. **Project page:** http://imagine.enpc.fr/~shenx/Watermark/.

Shen, Xi, Yang Xiao, Shell Xu Hu, Othman Sbai, and Mathieu Aubry. Re-ranking for image retrieval and transductive few-shot classification. In *Neural Information Processing Systems (NeurIPS)*, 2021. **Project page:** http://imagine.enpc.fr/~shenx/SSR/.

Yangtao Wang, **Shen, Xi**, Xu Hu, Yuan Yuan, James Crowley, and Dominique Vaufreyday. Self-supervised transformers for unsupervised object discovery using normalized cut. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. **Project page:** https://www.m-psi.fr/Papers/TokenCut2022/.

Yuan Yuan, Yueming Lyu, **Shen, Xi**, Ivor W Tsang, and Dit-Yan Yeung. Marginalized average attentional network for weakly-supervised learning. In *International Conference on Learning Representations (ICLR)*, 2019. **Code:** https://github.com/yyuanad/MAAN.

Journal

Shiry Ginosar, **Shen, Xi**, Karan Dwivedi, Elizabeth Honig, and Mathieu Aubry. The burgeoning computer-art symbiosis. *XRDS: Crossroads, The ACM Magazine for Students*, 2018.

Shen, Xi, Robin Champenois, Shiry Ginosar, Ilaria Pastrolin, Morgane Rousselot, Oumayma Bounou, Tom Monnier, Spyros Gidaris, François Bougard, Pierre-Guillaume Raverdy, Marie-Françoise Limon, Christine Bénévent, Marc Smith, Olivier Poncet, K Bender, Joyeux-Prunel Béatrice, Elizabeth Honig, Alexei A Efros, and Mathieu Aubry. Spatially-consistent feature matching and learning for art collections and watermark recognition. *International Journal of Computer Vision (IJCV)*, 2022. **Project page:** http://imagine.enpc.fr/~shenx/HisImgAnalysis/.

In Submission

Shen, Xi, Alexei A Efros, Armand Joulin, and Mathieu Aubry. Learning co-segmentation by segment swapping for retrieval and discovery. *arXiv*, 2022. **Project page:** http://imagine.enpc.fr/~shenx/SegSwap/.