SHEN Xi

Experience

Intellindust

2023–present **Chief Scientist**, Shenzhen.
Simple and Effective Computer Vision Algorimths on Low-cost Edge Devices

Tencent AI Lab

2021–2023 **Senior Researcher**, Shenzhen.
Generative Models for Images and 3D Human Motions

Education

2017–2021 **Ph.D.**, *École des Ponts ParisTech*, Paris.
Thesis: Deep Learning for Near-duplicated Patterns Discovery and Alignment in Artworks
Advisor: Mathieu Aubry
Thesis committee: Patrick Pérez, Alexei A. Efros, Shiry Ginosar, Laurent Heutte, Yann Gousseau
Impact: my paper ArtMiner [3] was covered by Nature, my thesis is served as the basis for the ERC DISCOVER project

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

Languages

Chinese Native **French** Fluent (10 years in France) **English** Fluent

Skills

Python (Pytorch), C++, Matlab, Latex
See my resleased code on GitHub: `http://github.com/XiSHEN0220`

Academic Services: Reviewer

Conference ICML 2022 (Outstanding reviwer), ICML 2023, CVPR 2022 - 2023, ECCV 2022
NeurIPS 2021 - 2023, ICCV 2023, ICLR 2020 - 2023, BMVC 2019 - 2022, WACV 2022
Journal IJCV, TPAMI

Teaching

2021 - 2021 Digital Humanities Meet Artificial Intelligence *Université Paris Sciences & Lettres*
2021 - 2021 Computer Vision for Mechanics of Materials *Ecole des Ponts ParisTech*
2019 - 2019 Signal Processing and Machine Learning *Ecole des Ponts ParisTech*

Mentoring

2022 - 2023 Jianrong Zhang *Jilin University*
2022 - 2023 Yangsong Zhang *Shanghai Jiaotong University*
2020 - 2021 Oumayma Bounou *Ecole des Ponts ParisTech*
2021 - 2022 Yingyi Chen *KU Leuven*

shenxiluc@gmail.com • *http://xishen0220.github.io*

2022 - 2022 Yangtao Wang — *Grenoble Computer Science Laboratory*
2022 - 2022 Wen Guo — *Inria RobotLearn*

Publications

RED indicates serving as the corresponding author

First Author

[1] **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/.

[2] **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/.

[3] **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/.

[4] **Shen, Xi**, Alexei A Efros, Armand Joulin, and Mathieu Aubry. Learning co-segmentation by segment swapping for retrieval and discovery. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition Workshop (CVPRW)*, 2022. **Project page:** http://imagine.enpc.fr/~shenx/SegSwap/.

[5] **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.

[6] **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/.

[7] **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/.

Corresponding Author

[8] Yingyi Chen, Shell Xu Hu, **Shen, Xi**, Chunrong Ai, and Johan A. K. Suykens. Compressing features for learning with noisy labels. *IEEE Transactions on Neural Networks and Learning Systems (TNNLS)*, 2022. **Project page:** https://yingyichen-cyy.github.io/CompressFeatNoisyLabels/.

[9] Yingyi Chen, **Shen, Xi**, Yahui Liu, Qinghua Tao, and Johan A. K. Suykens. Jigsaw-vit: Learning jigsaw puzzles in vision transformer. *Pattern Recognition Letters*, 2022. **Project page:** https://yingyichen-cyy.github.io/Jigsaw-ViT/.

[10] Wen Guo, Yuming Du, **Shen, Xi**, Vincent Lepetit, Alameda-Pineda Xavier, and Moreno-Noguer Francesc. Back to mlp: A simple baseline for human motion prediction. In *Proceedings of the IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2022. **Code:** https://github.com/dulucas/siMLPe.

[11] Yangtao Wang, **Shen, Xi**, Shell 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/.

[12] Yangtao Wang, **Shen, Xi**, Yuan Yuan, Yuming Du, Maomao Li, Shell Xu Hu, James L Crowley, and Dominique Vaufreydaz. Tokencut: Segmenting objects in images and videos with self-supervised transformer and normalized cut. In *Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, 2023. **Project page:** https://www.m-psi.fr/Papers/TokenCut2022/.

[13] Jianrong Zhang, Yangsong Zhang, Xiaodong Cun, Shaoli Huang, Yong Zhang, Hongwei Zhao, Hongtao Lu, and **Shen, Xi**. T2M-GPT: Generating Human Motion from Textual Descriptions with Discrete Representations. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023. **Project page:** https://mael-zys.github.io/T2M-GPT/.

Collaboration

[14] 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.

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

[16] 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.

[17] 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/.

[18] Liu Weihuang, **Shen, Xi**, Pun Chi-Man, and Cun Xiaodong. Explicit visual prompting for low-level structure segmentations. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023. **Project page:** https://nifangbaage.github.io/Explict-Visual-Prompt/.

[19] Zhang Wenxuan, Cun Xiaodong, Wang Xuan, Zhang Yong, **Shen, Xi**, Guo Yu, Shan Ying, and Wang Fei. Sadtalker: Learning realistic 3d motion coefficients for stylized audio-driven single image talking face animation. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2023. **Project page:** https://sadtalker.github.io/.

[20] Zhi Yihao, Cun Xiaodong, Chen Xuelin, **Shen, Xi**, Guo Wen, Huang Shaoli, and Gao Shenghua. Livelyspeaker: Towards semantic-aware co-speech gesture generation. In *International Conference on Computer Vision (ICCV)*, 2023. **Project page:** https://nifangbaage.github.io/Explict-Visual-Prompt/.

[21] 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.

In Submission

[22] Liu Weihuang, **Shen, Xi**, Pun Chi-Man, and Cun Xiaodong. Explicit visual prompting for universal foreground segmentations. In *submission to TPAMI*, 2023. **Project page:** https://nifangbaage.github.io/Explict-Visual-Prompt/.