

Danna Xue

POSTDOCTORAL RESEARCHER

Computer Vision Center (CVC), Barcelona, Spain

+34 625589146 | dxue@cvc.uab.es | dxue321.github.io | dxue321 | dxue100294 | Danna Xue

Overview

Currently, I am a postdoctoral researcher in computer vision, especially focusing on image/video editing and low-level vision tasks. I have developed novel approaches to solve different problems ranging from color-related tasks to image segmentation, and have published 11 papers in top-ranked journals and top-ranked conferences. I have research experience in cutting-edge research labs in Spain, China, and Canada, working in high-profile research projects. My research interests mainly lie on: Color (gamut mapping, image/video editing), Low-level vision (image restoration); Image understanding (semantic segmentation).

Work Experience

Universitat Autònoma de Barcelona & Computer Vision Center

Barcelona, Spain

Postdoctoral Researcher in Computer Vision

Jul 2024 - present

- Project 1: High-fidelity color processing in smartphone ISP, e.g. gamut mapping, tone mapping
- Project 2: Content-aware and consistent video editing

Education

Computer Vision Center, Universitat Autònoma de Barcelona | Northwestern Polytechnical University

Barcelona, Spain | Xi'an, China

Ph.D. in Computer Science

Mar 2019 - Jul 2024

- Under joint supervision of **Prof. Yanning Zhang**, **Assoc. Prof. Javier Vazquez-Corral**, and **Dr. Luis Herranz**
- Passed with Cum Laude Mention and supported by the CSC scholarship

Northwestern Polytechnical University

Xi'an, China

M.Sc. in Guidance, Navigation and Control

Sep 2015 - Apr 2018

- Specialised in control theory and astronomical image processing

Northwestern Polytechnical University

Xi'an, China

B.Eng. in Detection, Guidance, and Control Technology

Sep 2011 - Jul 2015

- Specialised in control theory and computer science
- Exchange in Universidad Politécnica de Madrid for 6 months supported by the CSC Scholarship

Research Experience

Computer Vision Center

Barcelona, Spain

Postdoctoral Researcher

Jul 2024 - present

- **High-fidelity color processing in smartphone ISP**
- Develop an efficient learning-based invertible framework both for gamut reduction and extension.
- Improve the perceptual gamut reduction quality while keeping high fidelity of gamut extension.
- **Consistent video editing with implicit neural representation**
- Accelerate and improve the generalization ability of the layer-based neural video decomposition model with a hypernetwork. (CVPR'25)

York University

Toronto, Canada

Research stay with Prof. Michael S. Brown

Feb 2023 - Apr 2023

- **Palette-based image color manipulation (PG'23, IEEE-SPL'24)**
- Develop an intuitive, user-friendly, and content-aware framework for multiple image color editing.
- Use color-naming for perceptual multi-image color consistency and single image color harmonization.

Computer Vision Center

Barcelona, Spain

Ph.D student with Assoc. Prof. Javier Vazquez-Corral and Dr. Luis Herranz

May 2021 - Jul 2024

- **Perception-distortion tradeoff for multi-image restoration (ICASSP'23)**
- Extend the perception-distortion tradeoff theory by introducing multiple-frame information.
- Analyse the performance of burst image restoration under both aligned bursts and misaligned bursts situations.
- **Slimmable semantic segmentation (ACM MM'22)**
- Propose an effective slimmable semantic segmentation network that can be executed at different capacities during inference.
- Improve the accuracy-efficiency tradeoff by stepwise downward knowledge distillation with the slimmable model.

- **Semantic aware image processing and understanding**
- Propose a self-supervised monocular depth estimation method with semantic guidance. (**PR'23**)
- Propose a severe blur removal method using semantic priors. (**CVIU'24**)

Publications

JOURNAL

Palette-based Color Harmonization via Color Naming [\[Code\]](#) [\[Paper\]](#)

[Danna Xue](#), Javier Vazquez-Corral, Luis Herranz, Yanning Zhang, Michael S Brown

IEEE Signal Processing Letters (2024). IEEE, 2024

Take a prior from other tasks for severe blur removal [\[arXiv\]](#)

Pei Wang, Yu Zhu, [Danna Xue](#), Qingsen Yan, Jinqiu Sun, Sung-eui Yoon, Yanning Zhang

Computer Vision and Image Understanding (2024) p. 104027. Elsevier, 2024

Integrating high-level features for consistent palette-based multi-image recoloring [\[Paper\]](#) [\[Demo\]](#)

[Danna Xue](#), J Vazquez Corral, Luis Herranz, Yanning Zhang, Michael S Brown

Computer Graphics Forum, 2023

Learning depth via leveraging semantics: Self-supervised monocular depth estimation with both implicit and explicit semantic guidance [\[Paper\]](#)

Rui Li, [Danna Xue](#), Shaolin Su, Xiantuo He, Qing Mao, Yu Zhu, Jinqiu Sun, Yanning Zhang

Pattern Recognition 137 (2023) p. 109297. Elsevier, 2023

Self-supervised monocular depth estimation with frequency-based recurrent refinement [\[Paper\]](#)

Rui Li, [Danna Xue](#), Yu Zhu, Hao Wu, Jinqiu Sun, Yanning Zhang

IEEE Transactions on Multimedia 25 (2022) pp. 5626–5637. IEEE, 2022

CONFERENCE

UDA4Inst: Unsupervised Domain Adaptation for Instance Segmentation [\[arXiv\]](#)

Yachan Guo, Yi Xiao, [Danna Xue](#), Jose L Gómez, Antonio M López

2025 *IEEE Intelligent Vehicles Symposium (IV)*, 2025

HyperNVD: Accelerating Neural Video Decomposition via Hypernetworks [\[Project\]](#) [\[arXiv\]](#)

Maria Pilligua*, [Danna Xue*](#), Javier Vazquez-Corral (*Equal Contribution)

International Conference on Computer Vision and Pattern Recognition (CVPR), 2025

PromptNorm: Image Geometry Guides Ambient Light Normalization [\[arXiv\]](#)

David Serrano-Lozano, Francisco A Molina-Bakhos, [Danna Xue](#), Yixiong Yang, Maria Pilligua, Ramon Baldrich, Maria Vanrell, Javier Vazquez-Corral

International Conference on Computer Vision and Pattern Recognition Workshop (CVPRW), 2025

Burst perception-distortion tradeoff: analysis and evaluation [\[Paper\]](#)

[Danna Xue](#), Luis Herranz, Javier Vazquez Corral, Yanning Zhang

IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), 2023

Slimseg: Slimmable semantic segmentation with boundary supervision [\[arXiv\]](#)

[Danna Xue](#), Fei Yang, Pei Wang, Luis Herranz, Jinqiu Sun, Yu Zhu, Yanning Zhang

ACM International Conference on Multimedia (ACMMM), 2022

PREPRINT

Rethinking Image Evaluation in Super-Resolution [\[Project\]](#) [\[arXiv\]](#)

Shaolin Su, Josep M Rocafor, [Danna Xue](#), David Serrano-Lozano, Lei Sun, Javier Vazquez-Corral

arXiv preprint arXiv:2503.13074 (2025). 2025

Academic Services

Conference Review	CVPR 2025 (outstanding reviewer), ECCV 2024, WACV 2023, ACM MM 2023, 2024.
Journal Review	Pattern Recognition; IEEE Transactions on Geoscience and Remote Sensing.
Program Committee	Organizer, CVCR&D 2025; Session Chair, CVCR&D 2024; Poster Session Chair, ACMCV 2024.

Skills

Programming	Python (PyTorch, Tensorflow, NumPy, Scikit-learn, Pandas, Colour, Matplotlib, etc.), MATLAB.
Miscellaneous	Linux, Shell, \LaTeX (Overleaf/R Markdown), Git.
Language	Mandarin (Native), English (Professional, C1), Spanish (Elementary, A1).