Yumeng Xue

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Education

University of Konstanz — Konstanz, Germany
Ph.D. Candidate, Department of Computer and Information Science — April 2022–Expected March 2027
- Advisor: Prof. Oliver Deussen

University of Konstanz — Konstanz, Germany
Master of Science (with distinction), Department of Computer and Information Science — March 2022

Shandong University — Qingdao, China
Bachelor of Engineering, Taishan College — June 2020

Research Interests

- **Visualization**
- **Visual Analytics**
- **Human-Computer Interaction**
- **AI-Assisted Interactive Systems**

Publications

[1] **Y. Xue**, P. Paetzold, B. Chen, Y. Wang, C. Hurter, and O. Deussen, "Structuring line ensembles with path-integrated fidelity and structural inconsistency fields", *IEEE Transactions on Visualization and Computer Graphics*, 2027, To appear. arXiv:2607.25121.

[2] **Y. Xue**, B. Chen, P. Paetzold, Y. Wang, C. Hurter, and O. Deussen, "Enhancing line density plots with outlier control and bin-based illumination", *IEEE Transactions on Visualization and Computer Graphics*, vol. 32, no. 6, pp. 4785–4795, 2026. DOI: 10.1109/TVCG.2026.3694447.

[3] **Y. Xue**, P. Paetzold, R. Kehlbeck, B. Chen, K. C. Kwan, Y. Wang, and O. Deussen, "Reducing ambiguities in line-based density plots by image-space colorization", *IEEE Transactions on Visualization and Computer Graphics*, vol. 30, no. 1, pp. 825–835, 2024. DOI: 10.1109/TVCG.2023.3327149.

[4] **Y. Xue**, P. Paetzold, B. Chen, R. Kehlbeck, Y. Wang, and O. Deussen, "Exploring large-scale trajectory data through 2D time-space view", in *IEEE Visualization Conference (VIS) Posters*, 2024.

[5] B. Chen, **Y. Xue**, P. Paetzold, and O. Deussen, "Demystifying UMAP artifacts: An interactive study on diagnosis and steering using 3D probes", *Information Visualization*, vol. 25, no. 3, pp. 358–372, 2026. DOI: 10.1177/14738716261434908.

[6] P. Paetzold, R. Kehlbeck, **Y. Xue**, B. Chen, Y. Wang, and O. Deussen, "Neighborhood-preserving voronoi treemaps", *IEEE Transactions on Visualization and Computer Graphics*, vol. 32, no. 1, pp. 276–286, 2026. DOI: 10.1109/TVCG.2025.3633905.

[7] P. Paetzold, R. Kehlbeck, H. Strobelt, **Y. Xue**, S. Storandt, and O. Deussen, "RectEuler: Visualizing intersecting sets using rectangles", *Computer Graphics Forum*, vol. 42, no. 3, pp. 87–98, 2023, ISSN: 1467-8659. DOI: 10.1111/cgf.14814.

[8] R. Bian, **Y. Xue**, L. Zhou, J. Zhang, B. Chen, D. Weiskopf, and Y. Wang, "Implicit multidimensional projection of local subspaces", *IEEE Transactions on Visualization and Computer Graphics*, vol. 27, no. 2, pp. 1558–1568, 2021. DOI: 10.1109/TVCG.2020.3030368.

[9] L. Cheng, B. Su, **Y. Xue**, X. Liu, and Y. Wang, "CA2: Cyber attacks analytics", in *VAST Challenge Workshop of 2020 IEEE Visualization Conference (VIS)*, 2020. DOI: 10.48550/arXiv.2308.06358.

Manuscripts Under Review

[1] **Y. Xue**, P. Paetzold, Y. Wang, C. Hurter, K.-L. Ma, and O. Deussen, "Passage index for interactive sketch queries over dense line ensembles", Manuscript under review at IEEE Transactions on Visualization and Computer Graphics.

[2] B. Chen, **Y. Xue**, P. Paetzold, Y. Wang, and O. Deussen, "ibUMAP: Coherent and scalable field evaluation for UMAP optimization", Manuscript under review at ICLR 2027. DOI: 10.48550/arXiv.2610.01445.

Experience

University of California, Davis — Davis, USA
Visiting Researcher, VIDI Lab (Prof. Kwan-Liu Ma) — May 2026 – August 2026

Shandong University — Qingdao, China
Research Assistant, High-Dimensional Data Reduction and Visualization — July 2019 – March 2021

Teaching

- **Teaching Assistant** at University of Konstanz — Summer 2024 & 2025
  Physical and Neural Methods for Realistic Image Generation
- **Teaching Assistant** at University of Konstanz — Winter 2023/24, 2024/25, 2025/26
  Seminar Computer Graphics

Skills

- **Programming:** C/C++, Python
- **Web Development:** JavaScript, TypeScript, React
- **Tools:** Git, Linux, LaTeX, Markdown
- **Database:** MySQL, MongoDB

Awards

- Mini-Challenge 1 Honorable Mention: Streamlined Analysis Process, VAST Challenge, IEEE VIS 2020 — 2020
- Honor Degree of Top-Notch Undergraduate Training Program, Shandong University — 2020
- Outstanding Academic Scholarship, Shandong University — 2019

Service

- Reviewer for IEEE VIS — 2026
- Reviewer for PacificVis — 2024
- Student Volunteer for IEEE VIS — 2023–2026