

Boyu Xu



Portfolio: <https://www.xuboyumedia.com/>

Github: <https://github.com/Boyu-Xu-projects>

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My research interests lie in integrating linked data, interactive data visualizations, user-centered design, and qualitative research methods to support learning and knowledge discovery in complex domains.

EDUCATION

Utrecht University , the Netherlands	Nov 2021 – Jan 2026
PhD, Department of Information and Computing Sciences	
Nanjing University of the Arts , China	Sep 2016 – Jun 2019
MA in Artistic Design	
University of Glasgow , UK	Sep 2017 – Aug 2018
MSc in Serious Games and Virtual Reality	
Nanjing University of the Arts , China	Sep 2012 – Jun 2016
BA in Artistic Design	

PROFESSIONAL EXPERIENCE

PhD, Utrecht University, Centrum Wiskunde & Informatica 14 Jan 2026

Dissertation title [*Exploring Indirect Relations Between Topics in Neuroscience Literature Using Augmented Reality to Inform Experimental Design*](#)

Supervised by [Prof. Lynda Hardman](#) (Principal Researcher & Strategist at CWI and Professor in Multimedia Discourse Interaction at Utrecht University) and [Dr. Wolfgang Hürst](#) (Associate Professor at Utrecht University)

Publications and videos are available from: <https://www.projects.science.uu.nl/ics-datar/>

An early overview of my PhD research was presented as a [Doctoral Consortium paper at CHIIR 2024](#).

My thesis contains three main chapters:

- Chapter 2: **Exploring Indirect Relations Between Topics**
 - Two poster papers were published at [MMM 2024](#) and [IEEE VR 2025](#).
 - [A full paper](#) is under review at [PeerJ Computer Science](#).
- Chapter 3: **Exploring the Evolution of Indirect to Direct Relations Between Topics Using a Timeline**
 - [A full paper](#) is under review at [Springer Virtual Reality](#).
- Chapter 4: **Exploring Indirect Relations via a Specific Intermediate Topic**
 - [A full paper](#) will be submitted in September 2025 to [ACM Transactions on Computer-Human](#)

Interaction.

Guangzhou Shiyuan Electronic Technology Co., Ltd., Guangzhou, China Jul 2019 – Aug 2021

Research & Development in Mixed Reality (MR)

- Helped create the MR Glasses Research Team and researched interaction perception and information transmission in MR by extending a 2D desktop using gestures to access 3D MR toolbars in real time.
- Helped build MR tools in the SDK, including plane detection and tracking, 3D object positioning, and light estimation.
- Designed and developed an MR demo to enhance books for children aged 7–12 with educational 3D images in MR.

Pactera Technology International Ltd., Shanghai, China Jan 2019 – Feb 2019

Intern

- Completed a mobile-based Chinese aeroplane ticketing application using requirements analysis, task analysis, concept design, information architecture design, interaction design, and usability testing.

Nanjing University of the Arts, Nanjing, China Oct 2018 – Nov 2018

Teaching Assistant for Font Design

- Tutored 3rd year BA students in course assignments on font design, explaining experimental type design & principles of modularity in type design.

Changzhou Beijiao Senior High School, Changzhou, China Jun 2012 – Aug 2012

Intern Art Teacher

- Taught students painting skills, provided instructions for national art exams, and enriched designing concepts through teaching.

PROJECT EXPERIENCE

Knowledge Graph for Methane Selective Conversion: May 2024 – Aug 2025

Revisiting and Predicting Product Selectivity and Methane Conversion

- Collaborated with three chemistry researchers to analyse experimental information on the methane selective conversion.
- Developed [a knowledge graph of methane selective conversion experiments](#) using LLMs and DNNs.
- This knowledge graph supports chemistry researchers in experimental design through an intuitive interface and predictive modelling.

Making an Accurate Acupuncture Feedback Platform Jun 2018 – Aug 2018

in a Virtual Teaching Environment

- *Glasgow MSc project*, built a feedback platform for accurate acupuncture using HTC VIVE (VR device).
- and Phantom Omni (haptic device), and developed and evaluated a VR environment for practising acupuncture exercises.

The Rod of Asclepius Jan 2018 – Apr 2018

- Contributed to a 5-person team to create a science fiction-themed third-person adventure game for 12-16 year olds, exploring what courage means.



- Responsible for the game worldview, storyline arrangement and construction, dialogue, and level design.

Tea Theme Graphic Design in Cultural Context

Sep 2017 – May 2019

- *Nanjing MA project*, explored design expressions and cross-border communication in multiple contexts (China, UK, and Japan) with tea culture as the theme.

**Font Design Program of Eight Representative Strokes
in the “Yong” (永) Character**

Sep 2016 – May 2019

- Designed a font based on eight representative strokes found in the Chinese character “Yong” (永, meaning “eternal” or “forever”), investigating traditional aesthetics and modern typeface design.

Travel Visual Reconstruction and Interpretation (Graduation Design)

Oct 2015 – Jun 2016

- *Nanjing BA project*, conducted a visual interpretation of the theme of “travel”, visually reconstructed the theme from posters, books, brands, and visual systems, and expressed the connotation of the theme with experimental art design.

CONFERENCES AND SEMINARS

The 32nd IEEE Conference on Virtual Reality and 3D User Interfaces

IEEE VR 25

Mar 8 – Mar 12, 2025

- *Presented the poster [Exploring Indirect Relations between Topics in Augmented Reality to Inform the Design of a Neuroscience Experiment](#)*

The 2024 ACM SIGIR Conference on Human Information Interaction and Retrieval

CHIIR 24

Mar 10 – Mar 14, 2024

- *Delivered the oral presentation [Supporting Neuroscience Literature Exploration by Utilising Indirect Relations between Topics in Augmented Reality](#)*, outlining the structure of the studies in my doctoral research.
- Discussed the evaluation methods in my research with two mentors.

The 30th International Conference on Multimedia Modeling

MMM 24

Jan 29 – Feb 2, 2024

- *Presented the AR demo (HoloLens 2) [DatAR: Supporting Neuroscience Literature Exploration by Finding Relations Between Topics in Augmented Reality](#)*

Dagstuhl Seminar 25442 Augmenting Human Creativity with AI

Oct 26 – Oct 29, 2025

- Collaborating with five co-authors on a perspective paper on the topic *How can AI systems relate to the uniqueness of creative practices? Is AI a tool or a resource?*

Dagstuhl Seminar 24301 Art, Visual Illusions, and Data Visualization

Jul 21 – Jul 26, 2024

- Collaborating with five co-authors on the paper *AI Impact on Creativity in Art and Visualisation*, to be submitted in January 2026 to [Journal of Perceptual Imaging](#).
- Coordinating a workshop proposal on [AI-Inspired Creativity: The Creative Pipeline for Visual Art and Design](#), to be submitted in October 2025 to the conference [EVA, London 2026](#).

AWARDS

Best Sound Award, Global Game Jam (Glasgow Competition Area)	2018
Scotland's Saltire Scholarships for international students, UK (top 50)	2017, 2018
Award for Age-Friendly Living Global 100-Poster Design, EU (top 100 out of 2701)	2017
Excellent BA Graduate, Nanjing University of the Arts (top 1%)	2016
Second Class Feng Jianqin Excellent Bachelor's Thesis Scholarship (top 1.5% of year)	2016
National Encouragement Scholarship, Nanjing University of the Arts (top 1% of year)	2015
Merit Student & First Class Scholarship, Nanjing University of the Arts (top 1% of year)	2013, 2014, 2015

SKILLS

Languages: English (Fluent in speaking and writing), Chinese (Native)

Development: Unity 3D (C#), Python

Experience with AR/VR Devices: HoloLens 1/2, HTC VIVE, Oculus, Action One, Kinect, Leap Motion

Applications: ZBrush, Illustrator, Photoshop, InDesign, Axure RP, Flash

PUBLICATIONS

Published:

Xu, B., Li, G., Wang, B., Bian, J., Pan, H., Min, Y., Qi, G., Xu, J., Deng, F., Ju, F., Ling, H., & Wang, Z. (2025). *Knowledge graph for methane selective conversion: Revisiting and predicting product selectivity and methane conversion*. **Advanced Science**.

DOI: <https://doi.org/10.1002/advs.202514601>

Xu, B., Hardman, L., & Hürst, W. (2025, March). *Exploring Indirect Relations between Topics in Augmented Reality to Inform the Design of a Neuroscience Experiment*. In Proceedings of the 2025 IEEE Conference on Virtual Reality and 3D User Interfaces (**IEEE VR 2025**).

DOI: <https://doi.ieeecomputersociety.org/10.1109/VRW66409.2025.00270>

Xu, B. (2024, March). *Supporting Neuroscience Literature Exploration by Utilising Indirect Relations between Topics in Augmented Reality*. Doctoral Consortium, in proceedings of the 2024 Conference on Human Information Interaction and Retrieval (**CHIIR 2024**) (pp 457-460).

DOI: <https://doi.org/10.1145/3627508.3638312>

Xu, B., Tanhaei, G., Hardman, L., & Hürst, W. (2024, January). *DatAR: Supporting Neuroscience Literature Exploration by Finding Relations Between Topics in Augmented Reality*. Demo paper, in International Conference on Multimedia Modeling (**MMM 2024**) (pp 295-300). Cham: Springer Nature Switzerland.

DOI: https://doi.org/10.1007/978-3-031-53302-0_24



**Utrecht
University**

Under review:

Journal submission: *PeerJ Computer Science*

Xu, B., Hardman, L., & Hürst, W. [*Informing the Design of a Neuroscience Experiment by Exploring Indirect Relations Between Topics in Augmented Reality*](#)

Journal submission: *Springer Virtual Reality*

Xu, B., Hardman, L., & Hürst, W. *Informing the Design of a Neuroscience Experiment by Exploring the Evolution of Indirect to Direct Relations Between Topics in Augmented Reality Using a Timeline*

DOI: <https://doi.org/10.21203/rs.3.rs-6327352/v1>