

XIANYU CHEN

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EDUCATION

- University of Minnesota, Twin Cities** (GPA: 4.0/4.0) Sept. 2019 - Now
Ph.D. in Computer Science (anticipated to graduate in 2025)
Advisor: Dr. Catherine Qi Zhao
- Sun Yat-sen University** Sept. 2015 - June 2018
M.E. in Information and Communication Engineering
Advisor: Dr. Ming Jiang
- Sun Yat-sen University** Sept. 2011 - June 2015
B.E. in Communication Engineering
Advisor: Dr. Ming Jiang

RESEARCH INTEREST

Computer Vision, Machine Learning, Deep Learning, Nature Language Processing

PUBLICATION

Journals

- [J.7] **Xianyu Chen**, Jinhui Yang, Shi Chen, Louis Wang, Ming Jiang, and Qi Zhao. [Every Problem, Every Step, All In Focus: Learning to Solve Real-World Problems with Integrated Attention](#). *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Feb 2024.
- [J.6] **Xianyu Chen**, Yali Wang, Jianzhuang Liu and Yu Qiao. [DID: Disentangling-Imprinting-Distilling for Continuous Low-Shot Detection](#). *IEEE Transactions on Image Processing (TIP)*, vol. 29, pp. 7765-7778, July 2020.
- [J.5] **Xianyu Chen** and Ming Jiang. [Enhanced Adaptive Polar-Linear Interpolation Aided Channel Estimation](#). *IEEE Wireless Communications Letters (WCL)*, vol. 8, no. 3, pp. 693-696, June 2019.
- [J.4] Huaiyin Lu, Lin Zhang, **Xianyu Chen** and Zhiqiang Wu. [Recursive Carrier Interferometry Aided High Data Rate OFDM Systems with PAPR Suppression, Phase Noise Rejection and Carrier Frequency Offsets Compensation](#). *IEEE Transactions on Vehicular Technology (TVT)*, vol. 68, no. 4, pp. 3655 - 3671, April 2019.
- [J.3] Kuan Wu, Ming Jiang, Fengxia She and **Xianyu Chen**. [Relay-Aided Request-Aware Distributed Packet Caching for Device-to-Device Communication](#). *IEEE Wireless Communications Letters (WCL)*, vol. 8, no. 2, pp. 217-220, Feb. 2019.
- [J.2] Zhengpeng Li, Ming Jiang, Xiaona Zhang, **Xianyu Chen** and Weikun Hou. [Space-Time-Multiplexed Multi-Image Visible Light Positioning System Exploiting Pseudo-Miller-Coding for Smart Phones](#). *IEEE Transactions on Wireless Communications (TWC)*, vol. 16, no. 12, pp. 8261-8274, Dec. 2017.
- [J.1] **Xianyu Chen** and Ming Jiang. [Adaptive Statistical Bayesian MMSE Channel Estimation for Visible Light Communication](#). *IEEE Transactions on Signal Processing (TSP)*, vol. 65, no. 5, pp. 1287-1299, March 2017.

Conferences

- [C.11] **Xianyu Chen**, Ming Jiang and Qi Zhao. [GazeXplain: Learning to Predict Natural Language Explanations of Visual Scanpaths](#). In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2024. (**Oral Paper, 2.3% acceptance rate**)

- [C.10] **Xianyu Chen**, Ming Jiang and Qi Zhao. [Beyond Average: Individualized Visual Scanpath Prediction](#). In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2024.
- [C.9] Jinhui Yang*, **Xianyu Chen***, Ming Jiang, Shi Chen, Louis Wang and Qi Zhao. [VisualHow: Multimodal Problem Solving](#). In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2022. (*Co-first authors/Equal contribution)
- [C.8] **Xianyu Chen**, Ming Jiang and Qi Zhao. [Leveraging Human Attention in Novel Object Captioning](#). In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, 2021.
- [C.7] **Xianyu Chen**, Ming Jiang and Qi Zhao. [Predicting Human Scanpaths in Visual Question Answering](#). In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2021.
- [C.6] **Xianyu Chen**, Ming Jiang and Qi Zhao. [Self-Distillation for Few-Shot Image Captioning](#). In *Proceedings of the IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2021.
- [C.5] Ze Yang, Yali Wang, **Xianyu Chen**, Jianzhuang Liu and Yu Qiao. [Context-Transformer: Tackling Object Confusion for Few-Shot Detection](#). In *AAAI Conference on Artificial Intelligence (AAAI)*, 2020.
- [C.4] **Xianyu Chen** and Ming Jiang. [Low-Complexity Adaptive Channel Estimation](#). In *Proceedings of the Vehicular Technology Conference (VTC)*, 2018.
- [C.3] Yufa Chen, Ming Jiang, Lin Zhang and **Xianyu Chen**. [Polarity Modulated Complex Colour Shift Keying for OFDM-Based Visible Light Communication](#). In *Proceedings of the IEEE/CIC International Conference on Communications in China (ICCC)*, 2017.
- [C.2] Zhengpeng Li, Ming Jiang, Xiaona Zhang, **Xianyu Chen** and Weikun Hou. [Miller-Coded Asynchronous Visible Light Positioning System for Smart Phones](#). In *Proceedings of the IEEE Vehicular Technology Conference (VTC)*, 2017.
- [C.1] **Xianyu Chen** and Ming Jiang. [Enhanced Bayesian MMSE Channel Estimation for Visible Light Communication](#). In *IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC)*, 2016.

Preprint

- [R.1] **Xianyu Chen**, Ming Jiang and Qi Zhao. [Leveraging Bottom-Up and Top-Down Attention for Few-Shot Object Detection](#). In *arXiv*, 2020.

Patent

- [P.14] Qi Zhao, Ming Jiang, **Xianyu Chen** and Zhi Yang. [Method, apparatus and system for recognizing tremor symptom, recognition terminal and storage medium](#), 2023, U.S. Patent Application No. 18/448,995.
- [P.13] Qi Zhao, Ming Jiang, **Xianyu Chen** and Zhi Yang. [Tremor symptom identification method, device, identification terminal, storage medium and system](#), 2024, China Patent No. CN118196594A.
- [P.12] Ming Jiang and **Xianyu Chen**, [Dimming control visible light communication system and method based on convex optimization framework](#), 2019, China Patent No. CN110855364B (Granted).
- [P.11] Ming Jiang and **Xianyu Chen**, [Optimal dimming control visible light communication system and method based on distortion strategy](#), 2019, China Patent No. CN110855363B (Granted).
- [P.10] Ming Jiang, Zhengpeng Li, Kunyi Cai and **Xianyu Chen**, [Dual-mode LED positioning method and system based on different Lambertian radiation lobe moduli](#), 2018, China Patent No. CN109324311B (Granted).
- [P.9] Yu Qiao, Ze Yang, Yali Wang, **Xianyu Chen**, Jianzhuang Liu and Jun Yue, [Image processing method and related equipment](#), 2020, China Patent Application No. CN113221929A
- [P.8] Yu Qiao, **Xianyu Chen** and Yali Wang, [Target detection method, device and equipment for continuous small sample images](#), 2019, China Patent No. CN110033026B (Granted).

- [P.7] Ming Jiang, Junyu Chen, Lei Zhao and **Xianyu Chen**, [Channel estimation method of marine communication system](#), 2020, China Patent No. CN111404847B (Granted)
- [P.6] Ming Jiang, Zefeng Lin and **Xianyu Chen**, [OFDM system supporting color adjustment and CSK constellation diagram detection](#), 2017, China Patent No. CN108092714B (Granted).
- [P.5] Ming Jiang, Yufa Chen, Lin Zhang and **Xianyu Chen**, [Optical OFDM communication system based on polar modulation and complex color shift keying](#), 2017, China Patent No. CN107395278B (Granted).
- [P.4] Ming Jiang, Kuan Wu, Fengxia She and **Xianyu Chen**, [Relay D2D data packet caching method based on user grouping demand diversity](#), 2018, China Patent No. CN108668261B (Granted).
- [P.3] Ming Jiang and **Xianyu Chen**, [Channel estimation method based on enhanced self-adaptive polarization linear interpolation](#), 2017, China Patent No. CN107508777B (Granted).
- [P.2] Ming Jiang, Jianhui Li, **Xianyu Chen**, Yixue Lei and Yunfei Zhang, [Internet-of-vehicles human-vehicle resource allocation method based on geographic region information](#), 2017, China Patent No. CN107659915B (Granted).
- [P.1] **Xianyu Chen** and Ming Jiang, [Visible light channel estimation method and system](#), 2015, China Patent No. CN105471777B (Granted).

TALK

- “GazeXplain: Learning to Predict Natural Language Explanations of Visual Scanpaths”, presented at *European Conference on Computer Vision (ECCV)*, 2024.
- “Leveraging Human Attention in Novel Object Captioning”, presented at *International Joint Conference on Artificial Intelligence (IJCAI)*, 2021.
- “Self-Distillation for Few-Shot Image Captioning”, presented at *IEEE Winter Conference on Applications of Computer Vision (WACV)*, 2021.

SERVICE

Review for Journals

- | | |
|---|----------|
| • IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) | 2023-Now |
| • IEEE Transactions on Multimedia (TMM) | 2023-Now |
| • IEEE Transactions on Neural Networks and Learning Systems (TNNLS) | 2023-Now |
| • IEEE Transactions on Circuits and Systems for Video Technology (TCSVT) | 2025-Now |
| • ACM Transactions on Multimedia Computing Communications and Applications (TOMM) | 2025-Now |
| • Journal of Visual Communication and Image Representation | 2021-Now |

Review for Conferences

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|---|------------------------------|
| • International Conference on Computer Vision (ICCV) | 2023, 2025 |
| • European Conference on Computer Vision (ECCV) | 2022, 2024 |
| • Computer Vision and Pattern Recognition (CVPR) | 2022, 2023, 2025, 2026 |
| • Winter Conference on Applications of Computer Vision (WACV) | 2022, 2023, 2024, 2025, 2026 |
| • AAAI Conference on Artificial Intelligence (AAAI) | 2023, 2024, 2025, 2026 |

ACADEMIC EXPERIENCE

Visual Information Processing Lab, University of Minnesota

Sept. 2019 - Now

Computer Vision, Vision and Language, Machine Learning

- Proposed a GazeXplain, a novel study of visual scanpath prediction and explanation.
- Proposed an individualized scanpath prediction (ISP), a new attention modeling task that aims to accurately predict how different individuals shift their attention in diverse visual tasks.
- Proposed a graph-based approach to vision-language problem solving for understanding and solving real-life problems.
- Proposed a large-scale dataset enabling a family of new vision-language tasks and computational methods for understanding and solving real-life problems.
- Designed a new method to complement novel object captioners with human attention features characterizing generally important information independent of tasks.
- Designed a new deep reinforcement learning method to predict scanpaths leading to different performances in visual question answering.
- Developed an ensemble-based self-distillation method for image captioning with few paired data and a large number of unpaired images and captions.
- Designed a new method for few-shot object detection by leveraging bottom-up and top-down attention based on object-concentration loss and background-concentration loss.

Multimedia Research Center, Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences

Aug. 2018 - Dec. 2018

Computer Vision in Low-Shot Object Detection

- Designed a simple but effective solution for continuous low-shot detection based on architecture design (Disentangling), model initialization (Imprinting), and training methodology (Distilling).

Wireless Communication Lab, Sun Yat-sen University

Dec. 2013 - June 2018

Estimation Theory in Optical Wireless Communication

- Designed a dimming control framework achieving optimal waveform design and extended it into two different variants to acquire better performance.
- Designed an enhanced adaptive polar linear interpolation to estimate the channel information more robustly and efficiently.
- Designed a new channel estimation method and analyze its performance bound based on Bayesian MMSE estimation.

INDUSTRIAL EXPERIENCE

Fasikl Incorporated

Oct. 2025 - Now

Full-time Employee

- Research Scientist - AI. Research and Development Department.

Fasikl Incorporated

Jan. 2025 - Sept. 2025

Part-time Senior Intern

- Research Scientist. Research and Development Department.

Fasikl Incorporated

Aug. 2024 - Dec. 2024

Part-time Intern

- Research Scientist. Research and Development Department.

Fasikl Incorporated
Intern

May. 2024 - Aug. 2024

- Research Scientist. Research and Development Department.

Fasikl Incorporated
Intern

May. 2023 - Aug. 2023

- Research Engineer. Mentor: Linh Hoang.

TEACHING EXPERIENCE

Teaching Assistant

- | | |
|---|-------------|
| • CSCI 5521: Machine Learning Fundamentals | Spring 2024 |
| • CSCI 5521: Machine Learning Fundamentals | Fall 2023 |
| • CSCI 2033: Linear Algebra | Spring 2023 |
| • CSCI 5521: Machine Learning Fundamentals | Fall 2022 |
| • CSCI 5302: Analysis of Numerical Algorithms | Spring 2022 |
| • CSCI 5521: Machine Learning Fundamentals | Fall 2021 |

RESEARCH EXPERIENCE

Research Assistant

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|-------------------------------------|-------------|
| • Visual Information Processing Lab | Summer 2022 |
| • Visual Information Processing Lab | Summer 2021 |
| • Visual Information Processing Lab | Summer 2020 |

HONOR

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|--|---|
| • Outstanding Reviewers | Winter Conference on Applications of Computer Vision (WACV), 2025 |
| • College Science and Engineering Graduate Fellowships | University of Minnesota, 2019, 2020 |
| • National Scholarship | Department of Education of China, 2013, 2017 |
| • The 1st Prize of Outstanding Students Scholarships | Sun Yat-sen University, 2013, 2014, 2015, 2016, 2017 |
| • Outstanding Undergraduate Student Award | Sun Yat-sen University, 2015 |
| • Zhentai Scholarship | Sun Yat-sen University, 2012 |

AWARD

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| • The 2nd Prize in Contemporary Undergraduate Mathematical Contest in Modeling | 2014 |
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- Meritorious Winner in Mathematical Contest in Modeling 2013
- The 1st Prize in Chinese Mathematics Competitions 2013
- The 2nd Prize in National Undergraduate Electronics Design Contest 2013
- The 3rd Prize in Summer Camp of Undergraduate Mathematical Contest in Modeling 2012

SKILL

Programming Language: Python, Matlab, JavaScript, HTML, C/C++, Linux shell

Tools: Pytorch, Tensorflow, Keras, Opencv, Unix/Linux, Git, Scikit-Learn, LaTeX