

Xin (James) GUO

guoxin@sais.org.cn | tigerguoxin@gmail.com | +(86)159-6711-7129
jamesguoxin.github.io | Google Scholar

RESEARCH PROFILE

Principal Research Scientist at the Shanghai Academy of Artificial Intelligence for Science (SAIS), working on AI for life sciences, multimodal scientific foundation models, scientific agentic AI, and automated labs for closed-loop discovery. Research interests include multi-omics and spatial biology, RNA design, scientific foundation models, tool-using AI systems, and trustworthy AI for scientific discovery.

EDUCATION

Doctor of Engineering (Part-time), AI4Science Sep. 2025 – Jun. 2029
Fudan University, Shanghai, China

Master of Engineering, Communication Systems Sep. 2012 – Oct. 2015
Swiss Federal Institute of Technology in Lausanne (EPFL), Lausanne, Switzerland

Bachelor of Engineering, Information & Communication Engineering Sep. 2008 – Jun. 2012
Zhejiang University, Hangzhou, China

EXPERIENCE

Principal Research Scientist Apr. 2024 – Present
[Shanghai Academy of Artificial Intelligence for Science \(SAIS\)](#), Shanghai, China
AI for Life Sciences, Scientific Foundation Models, and Agentic AI

- Lead research on AI for life sciences, spanning spatial gene expression prediction, single-cell chromatin accessibility modeling, RNA design, and scientific discovery workflows.
- Develop multimodal scientific foundation models that connect molecular, omics, spatial, imaging, and experimental data for life-science applications.
- Build foundation-model and agentic-AI capabilities for biological design, reasoning, and closed-loop discovery, with growing emphasis on automated laboratories.
- Representative works include FLAG, ChromFound, SOLD, SCRIPT, and HorusEye, covering spatial transcriptomics, single-cell omics, RNA design, long-range cis-regulation, and scientific imaging restoration.

Senior R&D Engineer Apr. 2016 – Apr. 2024
[Alibaba Group](#) & [Ant Group](#), Hangzhou, China
Foundation Models for Earth Observation, Applied Computer Vision, and Innovative Business

- Built SkySense, a multimodal remote-sensing foundation model for universal Earth-observation interpretation; it outperformed 18 recent counterparts across 7 tasks and 16 public datasets, and was accepted by CVPR 2024.
- Developed Yimutian, an Earth-observation interpretation platform for agricultural finance, supporting billion-scale business impact and receiving the CCF Technology Advancement Award.
- Designed computer-vision algorithms and edge inference systems for Dingsunbao, a mobile car-damage assessment platform; improved damage-assessment accuracy by 29% and user completion rate by 20%.
- Published representative papers at AAAI, CVPR, ECCV, ACM MM, NeurIPS, The Innovation, and Remote Sensing of Environment, with multiple patents granted internationally.

Software Engineer Feb. 2016 – Apr. 2016
Mogujie, Hangzhou, China

- Developed visual feature extraction services for recommendation systems.

Data Scientist Aug. 2015 – Nov. 2015
[Tractable Ltd.](#), London, United Kingdom

- Implemented clustering algorithms for semi-automatic annotation and internal labeling tools.

Master Thesis / Research Intern Sep. 2014 – Jul. 2015
nViso SA, EPFL Scientific Park, Switzerland

- Designed multi-stage training methods for deep multi-task facial landmark detection in Caffe, reducing land-

mark error from 7.71% to 5.87%.

Research Intern

Sony EuTEC, Stuttgart, Germany

Mar. 2014 – Sep. 2014

- Proposed an unsupervised clustering method based on linear predictive coding error for blind source separation, improving SDR by about 7dB on the TRIOS dataset.
- Published the work at ICASSP 2015; related patents were granted in the United States and Europe.

SELECTED PUBLICATIONS

* Equal contribution, (corr.) Corresponding Author

ICML 2026: Qi Si, Penglei Wang, Yushuai Wu, Yifeng Jiao, Xuyang Liu, **Xin Guo** (corr.), Yuan Qi, Yuan Cheng, [FLAG: Foundation model representation with Latent diffusion Alignment via Graph for spatial gene expression prediction](#)

Nature Computational Science, 2026: Yuetan Chu, Longxi Zhou, Gongning Luo, Kai Kang, Suyu Dong, Zhongyi Han, Lianming Wu, Xianglin Meng, Changchun Yang, **Xin Guo**, Yuan Cheng, Yuan Qi, Xin Liu, Dexuan Xie, Yue Li, Ricardo Henao, Xigang Xiao, Shaodong Cao, Gianluca Setti, Zhaowen Qiu, Xin Gao, [HorusEye: a self-supervised foundation model for generalizable X-ray tomography restoration](#)

AAAI 2026: Qi Si, Xuyang Liu, Penglei Wang, **Xin Guo** (corr.), Yuan Qi, Yuan Cheng, [Structure-based RNA Design by Step-wise Optimization of Latent Diffusion Model](#)

IJCAI 2026: Zehui Ling, Deshu Chen, Hongwei Zhang, Yifeng Jiao, **Xin Guo**, Zenglin Xu, Yuan Cheng, [Sprint or Delve: A Distribution-Aware Approach to Efficient Reasoning](#)

ICML 2025: Hongwei Zhang, Ziqi Ye, Xinyuan Wang, **Xin Guo**, Zenglin Xu, Yuan Cheng, Zixin Hu, Yuan Qi, [Efficient Network Automatic Relevance Determination](#)

ICCV 2025: Tan Pan, Zhaorui Tan, Kaiyu Guo, Dongli Xu, Weidi Xu, Chen Jiang, **Xin Guo**, Yuan Qi, Yuan Cheng, [Structure-aware Semantic Discrepancy and Consistency for 3D Medical Image Self-supervised Learning](#)

ICCV 2025: Zhaorui Tan, Xi Yang, Tan Pan, Tianyi Liu, Chen Jiang, **Xin Guo**, Qiufeng Wang, Anh Nguyen, Yuan Qi, Kaizhu Huang, Yuan Cheng, [Towards a Universal 3D Medical Multi-modality Generalization via Learning Personalized Invariant Representation](#)

NeurIPS 2025: Yifeng Jiao, Yuchen Liu, Yu Zhang, **Xin Guo** (corr.), Yushuai Wu, Chen Jiang, Jiyang Li, Hongwei Zhang, Limei Han, Xin Gao, Yuan Qi, Yuan Cheng, [ChromFound: Towards A Universal Foundation Model for Single-Cell Chromatin Accessibility Data](#)

NeurIPS 2025: Tan Pan, Kaiyu Guo, Dongli Xu, Zhaorui Tan, Chen Jiang, Deshu Chen, **Xin Guo**, Brian C. Lovell, Limei Han, Yuan Cheng, Mahsa Baktashmotlagh, [Minimal Semantic Sufficiency Meets Unsupervised Domain Generalization](#)

Advanced Science, 2025: Yu Zhang, Baole Wen, Yifeng Jiao, Yuchen Liu, **Xin Guo**, Yushuai Wu, Jiyang Li, Limei Han, Yinghui Xu, Xin Gao, Yuan Qi, Yuan Cheng, Ying He, Weidong Tian, [SCRIPT: Predicting Single-Cell Long-Range Cis-Regulation Based on Pretrained Graph Attention Networks](#)

CVPR 2024: **Xin Guo***, Jiangwei Lao*, Bo Dang*, Yingying Zhang, Lei Yu, Lixiang Ru, Liheng Zhong, Ziyuan Huang, Kang Wu, Dingxiang Hu, Huimei He, Jian Wang, Jingdong Chen, Ming Yang, Yongjun Zhang, Yansheng Li, [SkySense: A Multi-Modal Remote Sensing Foundation Model Towards Universal Interpretation for Earth Observation Imagery](#)

ECCV 2024: Yingying Zhang, **Xin Guo**, Jiangwei Lao, Lei Yu, Lixiang Ru, Jian Wang, Guo Ye, Huimei He, Jingdong Chen, Ming Yang, [POA: Pre-training Once for Models of All Sizes](#)

ACM Multimedia 2024: Lixiang Ru, **Xin Guo**, Lei Yu, Yingying Zhang, Jiangwei Lao, Jian Wang, Jingdong Chen, Yansheng Li, Ming Yang, [Parameter-Efficient Complementary Expert Learning for Long-Tailed Visual Recognition](#)

The Innovation, 2025: Yansheng Li, Jieyi Tan, Bo Dang, Mang Ye, Sergey A. Bartalev, Shinkarenko Stanislav, Linlin Wang, Yingying Zhang, Lixiang Ru, **Xin Guo**, Liangqi Yuan, Lei Yu, Jingdong Chen, Ming Yang, Jose Marcato Junior, Yongjun Zhang, [Unleashing the potential of remote sensing foundation models via bridging data and computility islands](#)

Remote Sensing of Environment, 2025: Yansheng Li, Yu Wang, Lei Yu, Bo Dang, Gang Xu, Zhenyu Zhong, Yuning Wu, **Xin Guo**, Kang Wu, Zheng Li, Linlin Wang, Jian Wang, Jingdong Chen, Ming Yang, Yongjun Zhang, [Learning to reason over multi-granularity knowledge graph for zero-shot urban land-use mapping](#)

CVPR 2023: Jiangwei Lao, Weixiang Hong, **Xin Guo**, Yingying Zhang, Jian Wang, Jingdong Chen, Wei Chu, [Simultaneously Short- and Long-Term Temporal Modeling for Semi-Supervised Video Semantic Segmentation](#)

NeurIPS 2023: Kun Huang, **Xin Guo**, Meng Wang, [Towards Efficient Pre-Trained Language Model via Feature Correlation Distillation](#)

AAAI 2020: Wei Zhang, Yuan Cheng, **Xin Guo**, Qingpei Guo, Jian Wang, Qing Wang, Chen Jiang, Meng Wang, Furong Xu, Wei Chu, [Automatic Car Damage Assessment System: Reading and Understanding Videos as Professional Insurance Inspectors](#)

ICASSP 2015: **Xin Guo**, Stefan Uhlich, Yuki Mitsufuji, [NMF-based Blind Source Separation using a Linear Predictive Coding Error Clustering Criterion](#)

SELECTED SERVICES

Teaching Assistant: Pattern Classification and Machine Learning, EPFL Course with Prof. Matthias Seeger	Sep. 2013 – Jan. 2014
Interview: Dingsunbao automatic car damage assessment system Radio Television Suisse	Nov. 2018
Competition: ATEC Competition co-organizer ATEC / Bilibili	Aug. 2023
Reviewer Service CVPR, ICCV, ICLR, ICML, NeurIPS, AAAI, KDD, ICME, ICPR, IJCV, TGRS	Ongoing

HONORS & AWARDS

Megarobo Engineering Grants and Awards	2025
Ant Group Annual T-Star Award	2023
Alibaba Group Chengdian Annual Philanthropy Award	2020
IEEE Signal Processing Society Travel Grant	2015
Outstanding Graduate, Zhejiang University	2012
Scholarship for National Talents Program	2010
Toshiba Scholarship and Zhejiang University Outstanding Student Scholarships	2008 – 2012

SKILLS

Research: AI for Science, AI for Life Sciences, Foundation Models, Agentic AI, Computer Vision, Multimodal Learning

Programming: Python, C/C++, Java, SQL, MATLAB

Machine Learning: PyTorch, TensorFlow, Caffe, scientific deep learning workflows

Languages: Mandarin Chinese (native), English (fluent; IELTS 8.0 / CEFR C1), French (basic), German (basic)

SELECTED PATENTS

Method, apparatus and system for blind source separation: By **Xin Guo**, Stefan Uhlich, Yuki Mitsufuji. US Patent [US10657973B2](#); European Patent [EP3201917B1](#)

Method and apparatus for processing video stream: By **Xin Guo**, Yuan Cheng, Chen Jiang. US Patent [US10943126B2](#)

System and method for performing image processing based on a damage assessment image judgment model: By **Xin Guo**, Yuan Cheng, Jun Huang. US Patent [US11216690B2](#)

Vehicle insurance image processing method, apparatus, server, and system: By Jinlong Hou, Haitao Zhang, **Xin Guo**, Juan Xu, Jian Wang, Yuan Cheng, Danni Cheng. US Patent [US10846556B2](#); Japan Patent [JP7118082B2](#); South Korea Patent [KR102373251B1](#)

Method and apparatus for obtaining vehicle loss assessment image, server and terminal device: By Haitao Zhang, Jinlong Hou, **Xin Guo**, Yuan Cheng, Jian Wang, Juan Xu, Fan Zhou, Kan Zhang. US Patent [US11151384B2](#); Japan Patent [JP6905081B2](#)

Image-based vehicle damage determining method and apparatus, and electronic device: By Haitao Zhang, Juan Xu, Jinlong Hou, Jian Wang, **Xin Guo**, Danni Cheng, Yue Hu, Bokun Wu, Yanqing Chen. US Patent [US10817956B2](#); Japan Patents [JP6859505B2](#) and [JP7110414B2](#)

Picture-based vehicle loss assessment: By Haitao Zhang, Juan Xu, Jinlong Hou, Jian Wang, **Xin Guo**, Danni Cheng, Yue Hu, Bokun Wu, Yanqing Chen. US Patent [US11049334B2](#); South Korea Patent [KR102418446B1](#)

Image-based vehicle loss assessment method, apparatus, and system, and electronic device: By Haitao Zhang, Juan Xu, Jinlong Hou, Jian Wang, **Xin Guo**, Danni Cheng, Yue Hu, Bokun Wu, Yanqing Chen. European Patent [EP3520045B8](#)

Method and device for assisting user in shooting vehicle video: By **Xin Guo**, Yuan Cheng, Qing Wang. Patent No. CN110650292B

Method and device for controlling terminal movement: By Yuan Cheng, **Xin Guo**, Chen Jiang, Wei Chu. Patent No. CN109062220B

Image processing method and device based on loss assessment image judgment model: By **Xin Guo**, Yuan Cheng, Jun Huang. Patent No. CN110569695B