

# Liwei Che

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**Research Interest:** PhD candidate specializing in improving the general-purpose capabilities and safety of LLMs/MLLMs. Expertise in hallucination mitigation, visual reasoning, and post-training techniques (RL, SFT).

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## EDUCATION

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- **Rutgers University-New Brunswick** Piscataway, NJ, USA  
*Doctor of Philosophy in Computer Science; Supervisor: Dr. Vladimir Pavlovic* Sep.2023 – Present
- **Pennsylvania State University** State College, PA, USA  
*Master of Science in Informatics; GPA: 3.89/4.00* Aug. 2021 – Aug.2023
- **University of Electronic Science and Technology of China** Chengdu, China  
*Bachelor of Engineering in Electronic Information Engineering; GPA:3.78/4.00* Sep. 2017 – Jul. 2021

## SELECTED PUBLICATION (TOTAL CITATION: 400+)

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1. **Learning from Primitive: Probing Visual Reasoning of LVLMs via Counting**  
Liwei Che, Yihao Quan, Zhiyu Xue, Benlin Liu, Zeru Shi, Ruixiang Tang, Ranjay Krishna, Vladimir Pavlovic. (*under review at ECCV2026*)
2. **[ICCV2025] Hallucinatory Image Tokens: A Training-free EAZY Approach on Detecting and Mitigating Object Hallucinations in LVLMs.**  
Liwei Che, Tony Qingze Liu, Jing Jia, Weiyi Qin, Ruixiang Tang, and Vladimir Pavlovic.
3. **[ECML-PKDD 2024] Leveraging Foundation Models for Multi-modal Federated Learning with Incomplete Modality.**  
Liwei Che, Jiaqi Wang, Xinyue Liu, and Fenglong Ma.
4. **[Amazon Alexa Prize]Penn State University. Evoquerbot: A multimedia chatbot leveraging synthetic data for cross-domain assistance.** In *Alexa Prize TaskBot Challenge 2 Proceedings*, 2023
5. **[NeurIPS 2023] Towards Personalized Federated Learning via Heterogeneous Model Reassembly.**  
Jiaqi Wang, Xingyi Yang, Suhan Cui, Liwei Che, Lingjuan Lyu, Dongkuan Xu, and Fenglong Ma. *Thirty-seventh Conference on Neural Information Processing Systems*.
6. **[Sensors] Multimodal Federated Learning: A Survey.**  
Liwei Che, Jiaqi Wang, Yao Zhou, and Fenglong Ma. *Sensors*, 23(15), 2023
7. **[IEEE Trans. SMC] Fedstream: Prototype-based Federated Learning on Distributed Concept-drifting Data Streams.**  
Cobbinah B. Mawuli, Liwei Che, Jay Kumar, Salah Ud Din, Zhili Qin, Qinli Yang, and Junming Shao. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, pages 1–13, 2023
8. **[Medical Image Analysis] Reducing Variations in Multi-center Alzheimer’s Disease Classification with Convolutional Adversarial Autoencoder.**  
Bernard M. Cobbinah, Christian Sorg, Qinli Yang, Arvid Ternblom, Changgang Zheng, Wei Han, Liwei Che, and Junming Shao. *Medical Image Analysis*, 82:102585, 2022
9. **[IEEE BigData] FedTriNet: A Pseudo Labeling Method with Three Players for Federated Semi-supervised Learning.**  
Liwei Che, Zewei Long, Jiaqi Wang, Yaqing Wang, Houping Xiao, and Fenglong Ma. In *2021 IEEE International Conference on Big Data (Big Data)*, pages 715–724, 2021
10. **[Preprint] FedSemi: An Adaptive Federated Semi-supervised Learning Framework.**  
Zewei Long, Liwei Che, Yaqing Wang, Muchao Ye, Junyu Luo, Jinze Wu, Houping Xiao, and Fenglong Ma.



## PROJECTS

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- **Amazon Alexa Prize TaskBot Challenge 2 (9th Place Worldwide)** State College, PA  
*Tech Leader (Supervisor: Dr.Rui Zhang)* Mar.2023 - Jul.2023
  - **Dialogue and recommendation module design**
    - Designed dialogue flow with humanistic care (allergies, religious sensitivities) for the Alexa taskbot system
    - Pushed the design and implementation of the recommendation system and helped the team to **improve the users' satisfaction from 32.8% to 58.8% within two weeks.**
  - **Multimedia Interaction**
    - Applied crawler techniques to collect images and match them with text instruction based on CLIP model.
    - Leverage prompt engineering to generate high quality synthetic images with DALLE2 to pairing the text steps of recipe and DIY instructions.

## SERVICE

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- **Academic Reviewer** Regularly for ICLR, ICML, NeurIPS, AISTATS, CVPR, AAAI, ICCV
- **Teaching** Data Management, Math Foundation for Data Science, Data Structure and Discrete Math (Rutgers University); Privacy and Security in Data Science, Statistical Security and Risk Analysis (Penn State)

## ACHIEVEMENTS

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<b>Rutgers University DCS Graduate Fellowship</b> \$20000	2025
<b>NSF Travel Grant for ICCV</b> \$1000	2025
<b>Lixin Tang Scholarship</b> Top 1%, 60 out of 50000	2021
<b>UESTC Outstanding Leadership Scholarship</b> Top 5%	2017–2020
<b>UESTC Excellent Student Scholarship</b> Top 5%	2017–2020
<b>UESTC Liren Scholarship</b> Top 2.5%	2018