

EDUCATION

Oregon State University <ul style="list-style-type: none">• PhD in Computer Science, GPA: 3.7• Research Direction: Object detection, instance segmentation, video action recognition, video action segmentation, video instance segmentation, multiple object tracking, diffusion models.	Corvallis, OR	Jan 2018 – Mar 2024
Oregon State University <ul style="list-style-type: none">• M.S. in Computer Science and Mechanical Engineering, GPA: 3.8• Research Direction: machine learning, deep learning, species distribution.	Corvallis, OR	Sep 2015 – Jul 2017

EMPLOYMENT AND EXPERIENCE

Graduate Research Assistant <ul style="list-style-type: none">• Lead a computer vision team focused on developing algorithms for Agricultural Robotics, detailed at https://agaid.org/. Current responsibilities include:<ul style="list-style-type: none">– Tree Branch Segmentation: Developed a robust system to accurately segment tree branches in RGBD videos, facilitating tasks such as tree pruning and nut shaking.– Trunk-width Estimation: Designed a tree trunk width estimation system, supporting measurements of fruit yield.– Cross-Domain Tree Segmentation: Developed cross-domain learning techniques to achieve accurate tree segmentation, leveraging fully-annotated synthetic tree datasets and unlabelled real orchard tree datasets.– Cross-Domain Multi-Modal Learning: Innovated methodologies that integrate motion features with appearance features, resulting in enhanced semantic segmentation performance.	AgAID Institute, Corvallis	Mar 2021 - Current
Applied Scientist Intern <ul style="list-style-type: none">• Developed visual perception algorithms for Amazon Astro robotics using computer vision, deep learning, and machine learning techniques:<ul style="list-style-type: none">– Conducted comprehensive evaluations of object detection performance, aligning with Responsible AI principles by analyzing results across diverse demographic factors (e.g., race, gender, age) and environmental conditions (e.g., lighting variations), while collaborating with multidisciplinary teams to ensure ethical deployment of AI technologies.– Developed PECA model for mirror segmentation, integrating novel boundary localization and context-aware features. Crucial for enabling robots to detect mirrors in home environments, preventing collisions and ensuring safety.– Implemented innovative approaches to enhance object detection accuracy, resulting in the design of BiADT, a novel cross-domain detection method accepted at ICCV 2023. With bidirectional domain alignment, BiADT outperforms baseline models and offering competitive performance in multiple benchmark scenarios.– For more information about Amazon Astro, visit: https://www.amazon.com/Introducing-Amazon-Astro/dp/B078NSDFSB	Amazon 126 Lab, Bellevue, WA	June 2019 – Sep 2022 (4 times)

LANGUAGES AND TECHNOLOGIES

- Python, Java, C, C++, Matlab, JavaScript, Docker, Git, AWS, MySQL, R, PyTorch, Numpy, OpenCV, TensorFlow
- MMDetection/MMSegmentation, Detectron2, Knowledge Distillation, Diffusion, GANs, NeRFs.

PUBLICATIONS

- **Liqiang He**, Sinisa Todorovic. Cross-domain Semantic Segmentation with Transformers. Submitted to the European Conference on Computer Vision (**ECCV**), 2024.
- **Liqiang He**, Wei Wang, Albert Chen, Min Sun, Cheng-hao Kuo, Sinisa Todorovic. Bidirectional Alignment for Domain Adaptive Detection with Transformers. IEEE/CVF International Conference on Computer Vision (**ICCV**), 2023.
- **Liqiang He**, Sinisa Todorovic. DESTR: Object Detection with Split Transformer. IEEE/CVF conference on computer vision and pattern recognition (**CVPR**), 2022.
- **Liqiang He**, et al. A polar-edge context-aware (PECA) network for mirror segmentation. Image and Vision Computing (IVC), 2022.
- T Wang, P Sankari, J Brown, A Paudel, **L He**, M Karkee, A Thompson, C Grimm, JR Davidson, S Todorovic. Automatic estimation of trunk cross-sectional area using deep learning. European Conference on Precision Agriculture (ECPA), 2023.
- Rebecca Hutchinson, **Liqiang He**, and Sarah Emerson. Species Distribution Modeling of Citizen Science Data as a Classification Problem with Class-conditional Noise. The 31st AAAI Conference on Artificial Intelligence (AAAI), 2017.