

# Chonghao Sima

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## Education

- 2023 – Now | **The University of Hong Kong (HKU), Hong Kong**  
*Ph.D. student in Computer Science; MMLab@HKU*  
• Advisor: Prof. Ping Luo & Prof. Hongyang Li
- 2019 – 2023 | **Purdue University, United States**  
*Ph.D. student in Computer Science, quit.*  
• Advisor: Prof. Yexiang Xue
- 2015 – 2019 | **Huazhong University of Science and Technology (HUST), China**  
*B.S. in Computer Science and Technology*  
• Advisor: Prof. Kun He. GPA: 3.8/4.0

## Publications

- 2026 | [1] **C. Sima**, C. Yu, M. Shi, L. Zhao, and et al, “ $\chi_0$ : Resource-aware robust manipulation via taming distributional inconsistencies,” *arXiv preprint arXiv:2602.09021*, 2026.
- 2025 | [2] AgiBot-World-Contributors, **C. Sima**, and et al, “Agibot world colosseo: A large-scale manipulation platform for scalable and intelligent embodied systems,” 2025.  
[3] L. Chen, **C. Sima**, K. Chitta, A. Loquercio, P. Luo, Y. Ma, and H. Li, “Intelligent robot manipulation requires self-directed learning,” *Authorea Preprints*, 2025.  
[4] S. Hamdan, **C. Sima**, Z. Yang, H. Li, and F. Guney, “Eta: Efficiency through thinking ahead, a dual approach to self-driving with large models,” in *ICCV*, 2025.  
[5] **C. Sima**, K. Chitta, Z. Yu, S. Lan, P. Luo, A. Geiger, H. Li, and J. M. Alvarez, “Centaur: Robust end-to-end autonomous driving with test-time training,” *arXiv preprint arXiv:2503.11650*, 2025.  
[6] S. Xie, L. Kong, Y. Dong, **C. Sima**, W. Zhang, Q. A. Chen, Z. Liu, and L. Pan, “Are vlms ready for autonomous driving? an empirical study from the reliability, data, and metric perspectives,” 2025.
- 2024 | [7] K. Ding, B. Chen, Y. Su, H.-a. Gao, B. Jin, **C. Sima**, W. Zhang, X. Li, P. Barsch, H. Li, and H. Zhao, “Hint-ad: Holistically aligned interpretability in end-to-end autonomous driving,” in *CoRL*, 2024.  
[8] **C. Sima**, K. Renz, K. Chitta, L. Chen, H. Zhang, C. Xie, J. Beißwenger, P. Luo, A. Geiger, and H. Li, “Drivelm: Driving with graph visual question answering,” in *ECCV Oral (2.3%)*, 2024.
- 2023 | [9] Y. Gao, **C. Sima**, S. Shi, S. Di, S. Liu, and H. Li, “Sparse dense fusion for 3d object detection,” in *IROS*, 2023.  
[10] Y. Hu, J. Yang, L. Chen, K. Li, **C. Sima**, X. Zhu, S. Chai, S. Du, T. Lin, W. Wang, L. Lu, X. Jia, Q. Liu, J. Dai, Y. Qiao, and H. Li, “Planning-oriented autonomous driving,” in *CVPR Best Paper Award*, 2023.  
[11] L. Huang, Z. Li, **C. Sima**, W. Wang, J. Wang, Y. Qiao, and H. Li, “Leveraging vision-centric multi-modal expertise for 3d object detection,” in *NeurIPS*, 2023.  
[12] H. Li, **C. Sima**, and et al, “Delving into the devils of bird’s-eye-view perception: A review, evaluation and recipe,” in *T-PAMI*, 2023.  
[13] **C. Sima** and O. Contributors, *Openscene: The largest up-to-date 3d occupancy prediction benchmark in autonomous driving*, <https://github.com/OpenDriveLab/OpenScene>, 2023.  
[14] **C. Sima**, W. Tong, T. Wang, L. Chen, S. Wu, H. Deng, Y. Gu, L. Lu, P. Luo, D. Lin, and H. Li, “Scene as occupancy,” in *ICCV*, 2023.  
[15] H. Wang, T. Li, Y. Li, L. Chen, **C. Sima**, Z. Liu, B. Wang, P. Jia, Y. Wang, S. Jia, F. Wen, H. Xu, P. Luo, J. Yan, W. Zhang, and H. Li, “Openlane-v2: A topology reasoning benchmark for unified 3d hd mapping,” in *NeurIPS, Track Datasets and Benchmarks*, 2023.

- 2022 [16] L. Chen, C. Sima, Y. Li, Z. Zheng, J. Xu, X. Geng, H. Li, C. He, J. Shi, Y. Qiao, and J. Yan, “Persformer: 3d lane detection via perspective transformer and the openlane benchmark,” in *ECCV Oral (2.3%)*, 2022.
- [17] Z. Li, W. Wang, H. Li, E. Xie, C. Sima, T. Lu, Y. Qiao, and J. Dai, “Bevformer: Learning bird’s-eye-view representation from multi-camera images via spatiotemporal transformers,” in *ECCV*, 2022.
- 2021 [18] C. Sima and Y. Xue, “Lsh-smile: Locality sensitive hashing accelerated simulation and learning,” in *NeurIPS*, 2021.

## Patents

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- 2025
- H. Li, Z. Li, W. Wang, C. Sima, L. Chen, Y. Li, Y. Qiao, J. Dai. Image Processing Method, Apparatus and Device, and Computer-Readable Storage Medium. US Patent 12,469,277.
  - H. Li, L. Chen, S. Gao, J. Yang, Y. Qiu, C. Sima, T. Li, J. Zeng, Y. Li, H. Wang, J. Yan, P. Luo, Y. Qiao. Method for Training Autonomous Driving Model, Electronic Device, and Storage Medium. US Patent App. 18/936,908.
  - H. Li, L. Chen, S. Gao, J. Yang, Y. Qiu, C. Sima, T. Li, J. Zeng, Y. Li, H. Wang, J. Yan, P. Luo, Y. Qiao. Method for Training Autonomous Driving Model, Method for Predicting Autonomous Driving Video, Electronic Device, and Storage Medium. US Patent App. 18/888,671.

## Awards

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- 2023
- **Best Paper Award (1/9155)**, CVPR 2023, for the UniAD paper, “Planning-oriented Autonomous Driving”
  - **Best Paper Finalist (29/4306)**, IROS 2025, for the Agibot-World paper, “AgiBot World Colosseo”
  - **Outstanding Reviewer (232/7000)**, CVPR 2023.
- 2022
- BEVFormer ranked **First (1/300)** on Waymo Open Challenge 2022 on 3D Camera-only Detection Track.
  - BEVFormer ranked **First (1/81)** on nuScenes detection leaderboard with camera-only modality.

## Internships

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- Apr. 2024 – Dec. 2024 | **NVIDIA, Santa Clara, USA**  
*Deep Learning Intern; Autonomous Vehicle Applied Research*
- *Mentor:* Dr. José M. Álvarez and Dr. Zhiding Yu
  - *Role:* Research and development of a test-time training pipeline for end-to-end autonomous driving planner to improve performance on safety-critical scenarios, which resulted in one submission (CVPR’25).
- Jun. 2019 – Mar. 2024 | **Shanghai AI Lab, Shanghai, China**  
*Research Intern; OpenDriveLab*
- *Mentor:* Prof. Hongyang Li
  - *Role:* Research and development of 3D perception and end-to-end autonomous driving with foundation model. 3D perception research includes bird’s-eye-view representation (TPAMI’23) for object (ECCV’22) and lane (**ECCV’22 oral**, NeurIPS’23), multi-modality fusion (NeurIPS’23 & IROS’23) and 3D occupancy (ICCV’23). Exploration of large vision-language model integration (**ECCV’24 oral & IROS’24**) into end-to-end autonomous driving (**CVPR’23 Best paper**).

## Academic Activities

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### Reviewing and Service

- *Journal Reviewer:* T-PAMI, IJCV.
- *Conference Reviewer:* CVPR, ICCV, ECCV, ICRA, IROS, NeurIPS, ICLR, ICML.
- *Challenge Host:* CVPR 2024 DriveLM at Autonomous Grand Challenge within FM4AS Workshop, CVPR 2023 3D Occupancy Prediction at Autonomous Driving Challenge within E2EAD Workshop.

### Workshop Organization

- *CVPR 2025:* Embodied Intelligence for Autonomous Systems on the Horizon, 06.11.2025. Jointly with Ana-Maria Marcu and Christos Sakaridis, Andrei Bursuc, Jonah Philion, etc.

- *CVPR 2024*: Workshop on Foundation Models for Autonomous Systems, 06.17.2024. Jointly with Hongyang Li, Kashyap Chitta, Andreas Geiger, Holger Caesar, Christos Sakaridis, Anthony Hu, Fatma Güney, German Ros, etc.
- *CVPR 2023*: Workshop on End-to-end Autonomous Driving: Emerging Tasks and Challenges, 06.18.2023. Jointly with Hongyang Li, Li Chen, Holger Caesar, Shenlong Wang, Ziwei Liu, Kashyap Chitta, etc.
- *ICLR 2023*: Workshop on Scene Representation for Autonomous Driving, 05.05.2023. Jointly with Hongyang Li, Mengye Ren, Li Chen, Kashyap Chitta, Holger Caesar, Ping Luo, etc.

### Recorded Talks

- End-to-end Autonomous Driving: Past, Current and Onwards. CVPR 2025 Tutorial on Robotics 101
- End-to-end Autonomous Driving at Scale and with Language: Hands-on Experience on NAVSIM and DriveLM. CVPR 2024 Tutorial on Towards Building AGI in Autonomy and Robotics.
- 3D Occupancy Prediction Challenge: Introduction and technical reports from awards. CVPR 2023 Workshop on End-to-end Autonomous Driving: Emerging Tasks and Challenges.

### References

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**Prof. Hongyang Li.** Assistant Professor, University of Hong Kong.

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**Prof. Ping Luo.** Associate Professor, University of Hong Kong.

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**Prof. Andreas Geiger.** Head of the Dept. of Computer Science, University of Tübingen.

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**Dr. José M. Álvarez.** Director, Autonomous Vehicles Applied Research, NVIDIA.

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**Dr. Zhiding Yu.** Principal Research Scientist and Research Lead, NVIDIA.

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