



TOKYO INSTITUTE OF TECHNOLOGY

Letter of Recommendation

December 14, 2022

Admission Office
University of Illinois Urbana-Champaign

To Whom it may concern,

I am a research associate in holographics at Tokyo Institute of Technology, before which I acquired my Ph.D. degree at Tokyo Tech. I am writing to recommend Mr. Zhongxuan Li for his admission to UIUC. I have had the opportunity to work with Zhongxuan during our industrial collaboration project on AR-HUD in 2020.

Empowering Head-up display (HUD) with augmented reality (AR) features is a challenging task. By the fact that we need to build both cutting-edge optical and software capabilities, and quickly launch their designs to meet growing market demand. For instance, nonlinearity in optical design and processing latency in software algorithm could either impair the system performance. Therefore, we had to deliver a product that integrated unique optical path design and algorithm technologies to best boost customer experience.

Zhongxuan took the main responsibility of algorithm accelerations on embedded platforms (Huawei Ascend Chip), which alleviated the dependency on GPUs in automotive mobile data center (MDC). One of his exemplary works was proposing a lightweight multi-task convolutional neural network applied to the AR-HUD environment perception module to achieve real-time simultaneous detection and segmentation. Although what he mostly employed are prevailing methods (e.g. pruning and quantization). It is his solid engineering skills and systematic mind of thinking that quite impressed me. Zhongxuan worked far beyond his compulsory scope, helped the team build the entire software pipeline, from driver's eye-tracking, and outdoor scene perception to LCoS display modulation.

Our work was successfully deployed on Huawei's AR-HUD prototype¹ exhibited in Munich. Throughout this project, Zhongxuan has demonstrated a strong willingness to learn and persistence in improvement. His expertise in deep learning and hardware acceleration made him qualified for graduate level of studies. Compared to the students I studied with at Tokyo Tech, and the ones I now working with. I would list Zhongxuan in the top 10%.

Please do not hesitate to contact me if you have further questions.

Sincerely,

Dr. Xiao Chen
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Tokyo Institute of Technology

¹ <https://www.huawei.com/us/news/2021/9/huawei-ar-hud-iaa-mobility-2021>