

## Recommendation Letter for Mr. He Yi

October 14, 2025

Dear Admissions Officer,

I am honored to recommend Mr. He Yi for the Master's/Ph.D. program at your university. During his time in my research team, he left an extremely deep impression on me with his outstanding research capabilities, keen insight, and strong execution ability. Given his talent, diligence, and abundant inspiration, along with his curiosity and passion for the field of artificial intelligence, I strongly recommend him for further academic study.

Upon joining the team, He Yi integrated into our cutting-edge projects with astonishing speed. In a very short period, he not only quickly mastered the project's content but also consulted and deeply understood a large volume of pioneering papers in the field, presenting them to the team on multiple occasions and bringing new perspectives and vitality. Possessing a solid foundation in mathematics and deep learning theory, coupled with a strong interest, the team entrusted him with the challenging task of implementing and validating REQNN (Rotation-Equivariant Quaternion Neural Network). He did not disappoint. He led the work of adapting the classic PointNet into a quaternion neural network. More importantly, He Yi designed a highly rigorous experimental plan to systematically validate the properties of the modified network. Through comparison with traditional neural networks, his experiments clearly and powerfully demonstrated the new model's unparalleled and significant advantages in processing arbitrarily rotated point cloud data and in recognizing and understanding parts in rotated states. This work not only showcased his excellent hands-on skills and solid mathematical foundation but also highlighted the rigorous thinking and innovative spirit he possesses as an outstanding researcher.

What sets He Yi apart from other students is his remarkably unique perspective and focus when approaching the same task. After understanding REQNN, he proposed to the team that we should directly translate our desired model properties (such as rotation equivariance) into mathematical constraints, fundamentally reconstructing the network from a theoretical standpoint to make it "naturally" possess these excellent characteristics. Realizing this idea and conducting experimental validation required not only a significant investment of time but also unique experimental design concepts. Ultimately, he executed this work very well. Beyond this, he is a collaborative team player with strong communication skills, providing a new source of strength for the team's progress.

In summary, He Yi is a highly talented, passionate, and exceptionally focused student. He is

capable of rapidly translating theoretical knowledge into practical research outcomes and bravely tackles complex challenges. I am confident that he will excel in your program and contribute significantly to your community. Therefore, I recommend He Yi for admission to your university with my strongest confidence. Please feel free to contact me for further details.

Sincerely,



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