To Whom It May Concern:

It is my pleasure to write this letter as my strongest endorsement for Dr. Qiuyuan (Enno) Huang who has applied for the faculty or researcher position in your university. I have known Dr. Huang since 2016, initially through our collaborative research on deep learning and continuing through her subsequent research achievements. During that time, I worked at Microsoft Research, where I was the Chief Scientist of AI and responsible for hiring Dr. Huang into my Deep Learning Technology Center at Microsoft Research as her manager and her postdoc advisor. Dr. Huang has made numerous pioneering contributions to the field that have significantly advanced the scientific understanding of improvements in deep learning. Her work has practical applications and has been extensively cited by other researchers, indicating its profound impact on future studies.

Dr. Huang is a Principal Researcher and Research Manager at Microsoft Research (MSR) in Redmond, WA. She joined MSR seven years ago, a decision I played a key role in after several positive evaluations from my colleagues and myself. Prior to this, Dr. Huang served as a Research Assistant and Teaching Assistant at the University of Florida, where she earned her Ph.D. in 2017. She subsequently worked as a postdoctoral researcher at Microsoft Research from 2017 to 2018. She participates in the executive management program in the business school from Harvard University 2024. Dr. Huang has published over 60 papers in leading Machine Learning, AI, and Multimodality conferences and journals. Her accolades include the Outstanding Young Researcher Award in Mathematics and Computer Science from the Heidelberg Laureate Forum in 2015, the Best Poster Paper Award at ACM MobiCom 2016, the Rising Stars in EECS recognition from MIT in 2018, the Best Student Paper Award at CVPR 2019, the Best Paper Award at workshop in NeurIPS 2019, and achieving the SOTA top performance on the OK-VQA Leaderboard in 2021.

I am presently the Chief AI Officer and Global Head of Machine Learning at Vatic Investments, and Affiliate Professor at the University of Washington. Before this, I held the same role at Citadel Asset Management since 2017 and worked at Microsoft Research since 1999. Given my background in related fields, including expertise in speech and natural language processing, computer vision, and AI, I am well-positioned to provide a credible endorsement of Dr. Huang's work. Her research, leadership, particularly in embodied AI in machine learning, has truly impressed me. It is my pleasure to write this letter as my strongest endorsement of Dr. Huang's distinguished expertise in the field of AI and recommend her for enrollment in the academia job for her further career development.

Dr. Huang's primary research revolves around developing generalist embodied multi-modal foundations with the goal of advancing Artificial General Intelligence (AGI). Her recent research includes creating embodied foundation models for interactive data-driven AI agents, integrating autonomous HCI system, vision-language models for embodied AI (such as Robotics and Generative AI), and advancing interactive AI agent system and infrastructure. Additionally, she has been exploring knowledge inference representation in trustworthy data-driven AI, as well as post-training with reinforce learning (RL) and imitation learning (IL) for multi-modality (Vision-Language) and natural language processing (NLP). One of Dr. Huang's most notable research endeavors is her work on embodied AI foundation models and their practical applications. Her contributions include participation in the MSR-OpenAI TENTs Project, where she worked on generating large multi-modal foundation models with interactive infrastructure. She has also been involved in the development of MSR's Generalist Embodied AI, focusing on multi-modality neuroscience representation in generative AI through HCI approach with OpenAI. This work is pivotal in creating dynamic interaction models (Generative AI) in embodied multi-modality, leveraging the emergent ability for trustworthy human value alignment.

Dr. Huang has made substantial contributions while at MSR in Redmond, USA, where she managed and led multiple projects focused on embodied AI with the different product teams and MSR partner Robotics company. She was leading a team for the MSR AI Project for embodied large foundation model in general purpose humanoid robotics. The applications in task planning for human-machine interaction with large language models (LLM), in robotics, gaming/VR/AR/mix-reality, embodied healthcare, and general multi-modality. This work has obtained international acclaim with sustained reputation, and the real-world application of this work. She also helped to ship AI techniques to Microsoft products and to create real-world impact like Microsoft x-box for Gaming, Bing search with knowledge-reasoning, Microsoft Turing team generated large foundation model. Dr. Huang's work has great real-world applications, as mentioned above. For example, the agent AI foundation model is the first embodied model for interpretable vision-language modeling for human uses. This work has been published in influential journals and conference proceedings in NeurIPS 2023, NAACL 2024, Transactions of ACL 2024, CVPR 2019, ACL 2020, ICML 2020 etc., in the top venues with excellent feedback showing the substantial progress she has made over the year at this frontier and the work is recognized by the mainstream AI community. The ability to publish in such a premier plethora of journals and top-conference are significant to note, as the manuscripts submitted must be peer-reviewed by other experts in the field and thus deemed original studies worthy of being published. The fact that Dr. Huang has published her work in these conferences/journals and its relatively high citation counts further illustrate her sustained level of expertise. Such expertise is particularly prominent in light of the rapid pace of research in the field and the rigorous peer review process in these journals and conference publications.

Dr. Huang is a rising star and has demonstrated significant contributions and distinguished expertise in the field of AI. She excelled as a collaborative leader during her time at MSR, integrating diverse viewpoints and incorporating others' perspectives. Dr. Huang's focus on cutting-edge research areas such as embodied artificial intelligence is truly commendable. Her innovative ideas and research have played a crucial role in aligning MSR's views on embodied AI. I greatly value her contributions to and her leadership in the Agent Al research. The work she has done in the domain of embodied Al in recent years stands out as a prime example of her high-impact contributions to Microsoft. She adeptly navigated the complexities of this challenging research area, demonstrating remarkable leadership skills throughout. Her ability to tackle difficult issues and guide her team effectively highlights her capabilities. By managing intricate problems with precision and insight, she showcased a deep understanding of the subject and a commitment to excellence. Her research commitment not only facilitated progress in this demanding field but also inspired those around her. Her adept handling of these challenges reflects her strong problem-solving skills and her dedication to achieving high standards in her research and leadership roles. By effectively engaging key stakeholders, rallying support teams, and coordinating with management, she fostered a spirit of collaboration that propelled the project forward. Dr. Huang's ability to unite diverse groups towards a common goal not only reflects her strong leadership but also her commitment to the team's success.

I would also like to add that when Dr. Huang was a member of my team at Microsoft Research, I found she has strong professional knowledge, great team spirit, and excellent research skills. She was eager to learn and was highly productive in research. She dared to challenge hard problems and worked hard with passion. She later further developed some degree of leadership. The afore-mentioned contributions of Dr. Huang were just a small sample of the outstanding research portfolio that Dr. Huang has built. Overall, I am acutely aware of and highly value her research and leadership abilities. I believe that she has other projects to come that will impact society and will provide further inspiration and advancement for other researchers in the field.

I was the founder of the Deep Learning Technology Center in 2014 and the head of Microsoft Research AI School during 2016-2017. When Dr. Huang was a lecturer at the Microsoft AI School, the courses she taught consistently received high praise from both her students and colleagues for her expertise, exceptional quality and innovative approach. She helped design the AI School courses to be both intellectually rigorous and accessible, ensuring that

students of all levels grasp complex AI concepts. Both her students and colleagues praised her ability to distill complex concepts into clear, engaging, and thought-provoking lessons which included hands-on projects and real-world applications, not only deepened student's understanding but also sparked curiosity and enthusiasm among her students. Her dynamic teaching style, coupling with her evident passion for AI, created a stimulating and supportive learning environment that resonated strongly with students. Students found her approachable, patient, and deeply committed to their success. She consistently went above and beyond the duty to provide guidance and mentorship, earning her a reputation as a dedicated and approachable educator. Further, Dr. Huang's efforts extended beyond the classroom, as she actively contributed to new curriculum development and fostered collaboration among faculty members. Colleagues admired her collaborative spirit and her contributions to enhancing interdisciplinary research, often seeking her advice on pedagogy and content design. Her dedication to mentoring and her ability to foster an inspiring and inclusive classroom environment made her especially popular with her students, many of whom credited her with influencing their academic and career paths in AI. Her work left a lasting impact, shaping the academic journeys of many aspiring AI professionals.

Dr. Huang is currently in the process of reshaping her academia trajectory. In her leadership role on the Embodied AI project, she is driving efforts to advance AI design and to make AI more immersive and interactive. In this role, she demonstrates qualities of a Futuristic Achiever. As an Achiever, she effectively breaks down complex tasks into manageable projects while maintaining a clear, overarching vision of the North Star. On the Futuristic side, her Futuristic qualities enable her to project a compelling vision of the future, motivating and aligning her team towards shared goals. As her project progressed, Dr. Huang faces various challenges, from securing adequate training data to managing GPU resources for model training. Her Achiever mindset is instrumental in sustaining team motivation despite obstacles, while her Futuristic perspective helps refine the project based on insights from previous research and ongoing safety data.

In summary, Dr. Huang's work is extraordinary, impactful, and has real-world applications. In my opinion, Dr. Huang has established a strong research record in terms of not only scholarly publications, but also professional services and leadership. I consider her as one of the standout talent researchers and extraordinary faculty candidates I have encountered. Based on my conversations with others, I know my opinion about Dr. Huang's exceptional scholarship and stature as a leading researcher is shared by many eminent peers in the field. I am pleased to offer my strongest support for Dr. Huang's application of faculty or research positions to join your university.

Yours Truly,

Li Deng, Ph.D.

Chief AI Officer and Global Head of Machine Learning, and Affiliate Professor
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