

## Central South University Yuelu Mountain, Changsha, Hunan, 410083, P.R. China

Tel: 86-731-88879201 Fax: 86-731-88710883 http://www.csu.edu.cn

Dear Graduate Admissions Committee,

I am Wang Weiping, Professor and Doctoral Supervisor at School of Computer Science, Central South University. Upon request, I am taking the privilege to highly recommend Sun Qi for graduate study at your distinguished university based on his outstanding performance and contributions during his involvement in a research project within my group starting from the summer of 2023.

Sun Qi reached out to me and expressed his interest in joining my research group for a summer intern. After assessing his background and skills, I assigned him to the project of Advanced Techniques for Handling Malicious Traffic in Large-Scale Networks.

His primary task involved implementing the code for constructing the knowledge graph. Sun Qi demonstrated impressive proficiency in setting up a model for extracting various types of Structured Threat Information eXpression (STIX) entities mentioned in a vast array of unstructured Cyber Threat Intelligence (CTI) reports. He successfully identified relationships between different entities within a single report, laying the foundation for the construction of a comprehensive knowledge graph. Despite the inherent difficulties, he rapidly acquired knowledge about CTI and STIX, and developed a clear understanding of the task at hand, by means of which he adeptly addressed challenges such as limited existing entity knowledge bases and the extraction of long-distance relationships between entities.

Remarkably, Sun Qi independently managed the entire process of this task, and revealed his exceptional coding skills and innovative thinking. He not only realized the entire model on his own but also creatively applied deep learning algorithms into the extraction procedure. Impressively his model showed superior performance with higher Precision and F1 Score than previous works. His effort contributed significantly to the current project.

I am confident that Sun Qi's academic background and capacities will make him an ideal candidate for graduate study. His outstanding performance in our research project revealed his potential and commitment to advancing in the field. I highly recommend him for admission to your graduate program, where I am certain he will continue to excel and make meaningful contributions to the academic community.

Please offer the student your most considerate evaluation. If you require additional information, please feel free to contact me.

Wang Weiping

Yours Truly,

Prof. Wang Weiping

wpwang@csu.edu.cn

School of Computer Science, Central South University