



10/30/2020

To Whom It May Concern:

It is my great pleasure to offer this reference on behalf of Mr. Jun Liu who is applying for the TriDurLE Outstanding Graduate Student Award. Currently he is a Ph.D candidate in Civil, Architectural, and Environmental Engineering Department at Missouri S&T, and has been working as a graduate research assistant since fall of 2017.

Before Jun started his Ph.D study at S&T, he has worked in asphalt materials area for three years during his MS study in China and has published several peer-reviewed journal publications based on his work, which was very impressive for a MS student. He has worked a project entitled "Laboratory and Field Evaluation of Modified Asphalt Binder in Alaskan Pavements" funded by both Center for Environmentally Sustainable Transportation in Cold Climates and AKDOT&PF, which is also part of his Ph.D thesis. I have found that he is a self-starter, a hard-worker, honest, and energetic. In this project, he has performed a comprehensive literature review, covering the up-to-date practices and research findings of using modified binder, particularly in cold climates. He has spent substantial time in the lab conducting a variety of binder and mixture tests. He is also a solution-oriented person. For the data analysis, he applied different programs such as Thermal Stress Analysis Routine (TSAR), Rheology Analysis software (RHEA) to predict cracking performance of asphalt pavements and correlate performance and cracking temperatures. He also conducted some chemical analysis and explored the correlation between micro- and macro-structures of materials. He continued to be productive, and so far four journal articles (published, accepted or under review) were generated based on the research findings from this project. The research was also disseminated through different professional venues such as S&T's Transportation Infrastructure Conference and TRB annual meetings.

Jun has strong motivation to further his study to better understand asphaltic materials for better, safer, and more cost-effective pavement infrastructure. Currently he started to work on the Center funded project to explore the viability of using recycled plastics in asphalt in the state of Missouri. I believe his skills in conducting a variety of laboratory tests, and his impressive enthusiasm, and passion, and commitment in research will continue to benefit the success of this new project.

Jun is also an excellent group leader. As a senior Ph.D student, he has been assisting me in supervising MS and undergraduate research assistants such as providing lab testing training, and reviewing lab testing plans and results. Jun is also very active in professional societies. He has served as a paper reviewer for several top journals in our field. He also helped in organizing the 10<sup>th</sup> International Association of Chinese Infrastructure Professionals Annual Workshop as a student member in the Organizing Committee.

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In a summary, I am very confident that Jun Liu is well qualified as the TriDurLE Outstanding Graduate Student. If you would like further elaboration, please feel free to contact me.

Sincerely,

A handwritten signature in cursive script, appearing to read "Jenny Liu".

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