Bryce Mazurowski

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Dear Altair Hiring Team,

I was excited to see the opening for a Lead Software Engineer focusing on fluid structure interaction at Altair while browsing the company website. I have been fully focused on the research and development of computational methods for engineering software as I worked towards completing my PhD at the University of Illinois. I am passionate about working at the interface of computing and engineering and the power it has to change the world. Working for a company like Altair, which has an excellent reputation in this field, would be a great next step for my career.

I have greatly enjoyed learning and creating at the University of Illinois. The work has been an engaging mix of reading papers, thinking through problems, writing out the math, planning out algorithms, and implementing them. My implementation work has been done in a C++ code used by many collaborators, where the ability to communicate clearly is a necessity. While I have spent plenty of time focusing on the math and physics that apply to the problems I study, I have also put significant effort into writing clean, safe, and efficient software. We use git for version control and have a robust testing framework for quality assurance, with more than a thousand tests. I have been operating in a research-heavy role remotely for several years, which is another exciting aspect of this position.

My background is focused on finite element methods and numerical analysis. I have applied finite volume methods to fluid flow problems and have studied meshfree methods during my time in Professor Armando Duarte's research group. My research background has also equipped me with a skill set to learn and implement cutting edge numerical methods from textbooks and the literature. Fluid structure interaction is a major concern in high-speed aircraft applications, which motivated my research at the University of Illinois. This was a subject I encountered in detail in conversations with the Air Force Research Lab while at the University of Illinois, and during the two summers I spent at Boeing in the high-speed structures group. While the finished product of my work is compiled into several journal papers and conference presentations, my favorite part is pen-on-paper math and commits sent to our git repository.

Altair has an exceptional reputation in the engineering software space. I have used several Altair tools during my research at the University of Illinois and Boeing, and read extensively about the innovative software in Altair's platform. The Radioss solver is an industry-leading tool with a wide range of exciting applications. I have the skills and knowledge to contribute to the fluid structure interaction capabilities of Radioss. Applying my computational mechanics skills to such a high-performing tool is an exciting opportunity.

My passion and skill set align with Altair's mission to develop the best and most capable engineering and physics software. My experience and proven ability to perform computational research and implement cutting-edge methods in fluid structure interaction problems make this a position I would excel in. I would appreciate the opportunity to explore this opening further with you.

Sincerely,

Bryce Mazurowski