

# FAST RUNNING CFD CODE USING GPGPUs FOR HIGH FIDELITY AIRBLAST CALCULATIONS

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Modern CFD codes have been shown to be capable of predicting airblast loads on structures within complex urban environments. These codes generally require significant computational resources. In recent years the airblast community has expended significant effort in developing simplified tools for analyzing the same type of problems. These fast running engineering models do not require significant computational resources but are generally less accurate and less capable of dealing with complex geometries. This paper reports the development of a fast-running yet high-fidelity CFD airblast code that attempts to bridge the gap between the fast-running tools and the first-principles physics based codes by using Graphic Processing Units rather than CPUs to perform the calculations. This code has been shown to be at least an order of magnitude faster than existing, equivalent CFD codes. Validation and benchmark examples will be presented as will a discussion of the impact of such a tool within the real-world environment of a blast engineering consultancy.