

Project Proposal

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For my final project, I have chosen to explore the numerical solution of the wave equation. The wave equation is a fundamental partial differential equation that describes the propagation of waves. It finds applications in various fields, including physics, engineering, and acoustics. I plan to start implementing a solution using FDM. Moreover, I recognize the significance of visualization in understanding and presenting numerical solutions. I intend to leverage MATLAB's visualization tools to create clear and informative graphical representations of the evolving wave profiles.

Throughout the project, I will address the computational aspects of solving the wave equation, paying particular attention to accuracy, stability, and efficiency. Additionally, I will explore the impact of different parameters and boundary conditions on the numerical solutions. Lastly, I anticipate that my project will culminate in a comprehensive presentation during the final week of class, where I will share my insights, challenges encountered, and the significance of my findings in the context of solving real-world problems governed by the wave equation.