Wavelets based physics informed neural networks to solve non-linear differential equations

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This work presents the numerical solution of Blasius boundary layer fluid flow 2-dimensional fluid flow problem using unsupervised physics-informed neural networks. The applicability of different wavelets as activation functions is investigated. As PINN depends on various parameters, the impact of network architecture on the accuracy of the model is also studied. The findings show that wavelet activation functions can offer improved accuracy over the traditional tanh activation function, depending on the specific problem, demonstrating the potential for enhanced performance with the proposed method.

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