The Physics of Data. Part IX

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Highly recommend start learning Julia for physics-applied learning machines and scientific ML. Specially, if you are interested in creating your own differential equations when conventional data science or machine learning algorithms are not enough to produce reliable and repeatable predictions.

Keep in mind that the majority of real time systems working in the field that feed into instrumentation databases are in essence dynamical systems, which are costly, difficult, and nearly impossible to address with data science or machine learning. That world is of small and smart data.

Personally, I have found tons of libraries and goodies for advanced calculus, differential equations, Computational Physics, scientific machine learning in Julia. Julia should not be hard to learn if you have some Python, Matlab, or R background. Pretty much close to pseudo-code and very fast.

Although, you still could achieve practically same results with Python + Jax and its ubiquitous ML libraries such as PyTorch and TensorFlow, I love Julia laser-focus on scientific computing, which is sorely absent in Machine Learning and pseudo-AI of today.

hashtags:: SciML Physics Of Data Differential Equations SPE Petroleum Engineering Artificial Intelligence Data Science Small Data Smart Data SEG

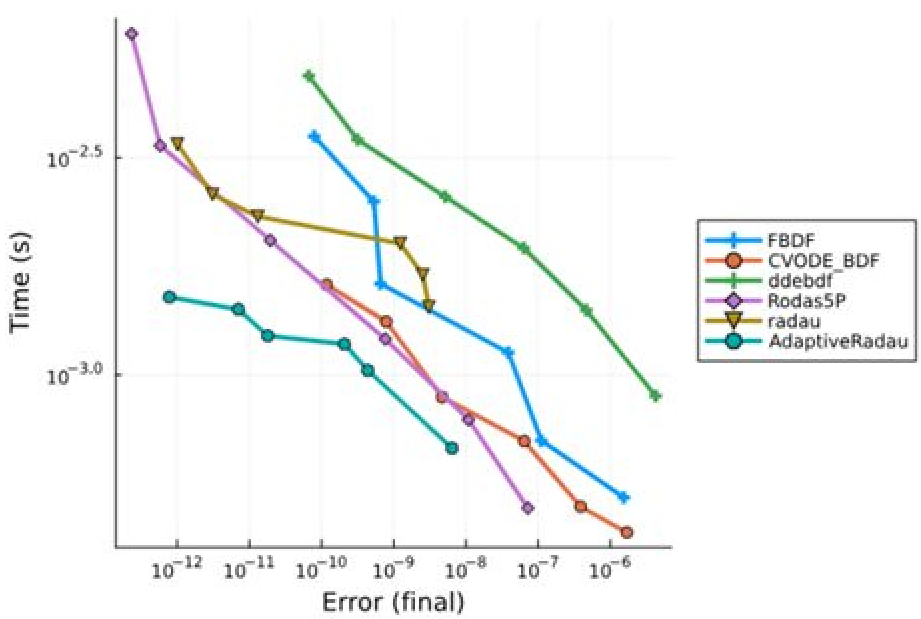

Fig. 4. Comparison between different Runge-Kutta methods on the Hires problem

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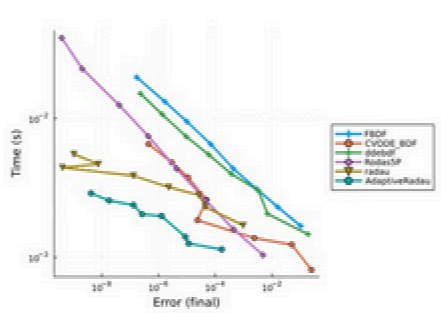
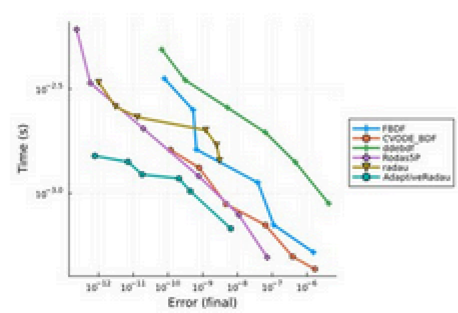


Fig. 2. Comparison between different Runge-Kutta methods on the Oregonator problem



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