DiffusionPDE Author Response

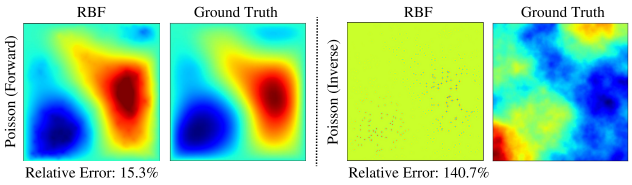

Figure 1. Forward and Inverse Results of Poisson equation recovered by 500 observation points using RBF Kernel.

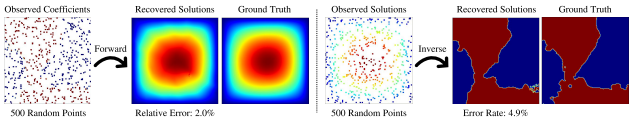

Figure 2. Forward and inverse results of Darcy Flow recovered by 500 observation points under a different data setting.

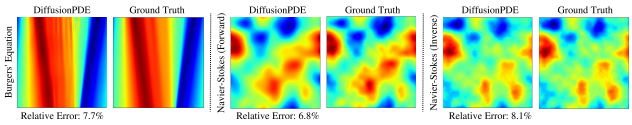

Figure 3. Results of Navier-Stokes equation and Burgers' equation with 10 times smaller viscosity.

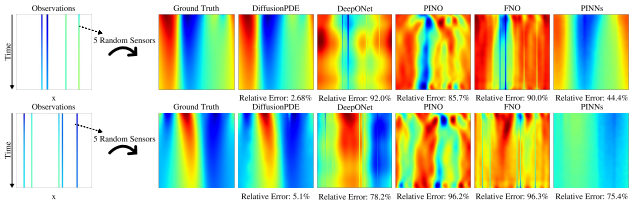

Figure 4. Burgers' equation using another PINNs model [1].

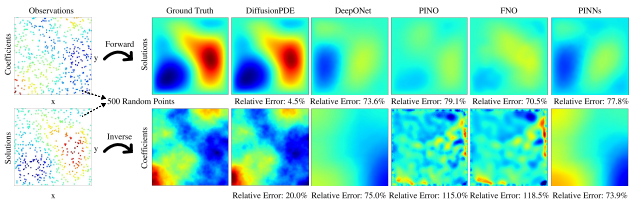

Figure 5. Results of Poisson equation after optimizing baseline methods.

References

[1] Hamidreza Eivazi, Yuning Wang, and Ricardo Vinuesa. Physics-informed deep-learning applications to experimental fluid mechanics. *Measurement science and technology*, 35(7):075303, 2024.

[2] Dule Shu, Zijie Li, and Amir Barati Farimani. A physics-informed diffusion model for high-fidelity flow field reconstruction. *Journal of Computational Physics*, 478:111972, 2023.

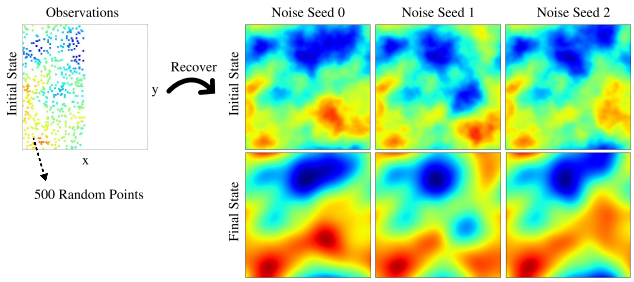

Figure 6. Different predictions of DiffusionPDE generated by different initial noise for non-bounded Navier-Stokes equation.

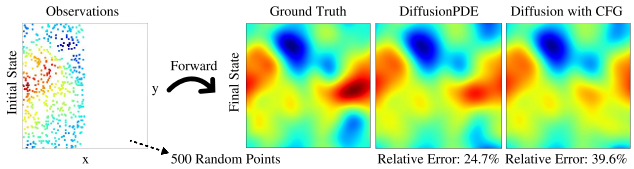

Figure 7. Comparison between DiffusionPDE and Diffusion CFG under different sampling patterns for non-bounded Navier-Stokes equation.

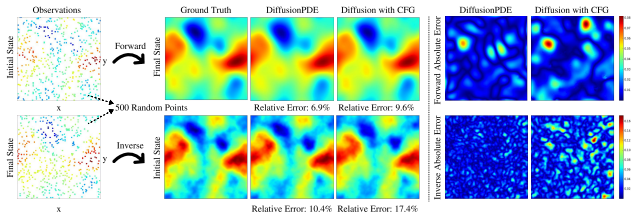

Figure 8. Comparison between DiffusionPDE and Diffusion CFG regarding non-bounded Navier-Stokes equation.

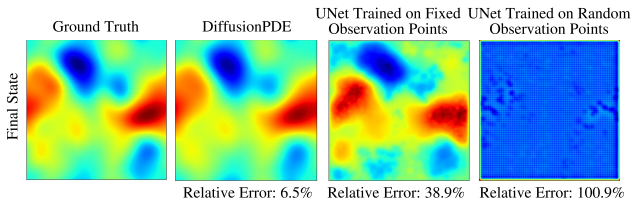

Figure 9. Comparison between DiffusionPDE and UNet regarding non-bounded Navier-Stokes equation.

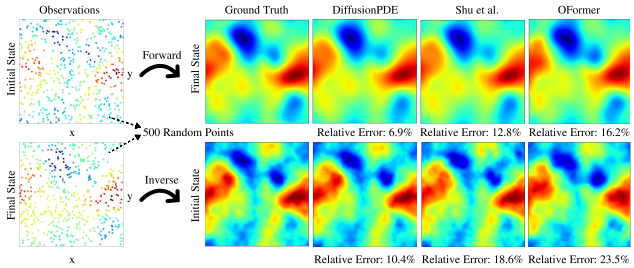

Figure 10. Comparison between DiffusionPDE, Shu et al. [2], and OFormer for non-bounded Navier-Stokes equation.