cases	doc_1		doc_2		decision	id
	authors	• Pouria Mistani • Samira Pakravan • Rajesh Ilango • Sanjay Choudhry • Frederic Gibou	authors	• Choudhry, Sanjay • Gibou, Frederic • Ilango, Rajesh • Mistani, Pouria • Pakravan, Samira	DUPLICATES	201
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	abstract	We present a highly scalable strategy for developing mesh-free neuro-symbolic partial differential equation solvers from existing numerical discretizations found in scientific computing. This strategy is unique in that it can be used to efficiently train neural network surrogate models for the solution functions and the differential operators, while retaining the accuracy and convergence properties of state-of-the-art numerical solvers. This neural bootstrapping method is based on minimizing residuals of discretized differential systems on a set of random collocation points with respect to the trainable parameters of the neural network, achieving unprecedented resolution and optimal scaling for solving physical and biological systems.	abstract	We present a highly scalable strategy for developing mesh-free neuro-symbolic partial differential equation solvers from existing numerical discretizations found in scientific computing. This strategy is unique in that it can be used to efficiently train neural network surrogate models for the solution functions and the differential operators, while retaining the accuracy and convergence properties of state-of-the-art numerical solvers. This neural bootstrapping method is based on minimizing residuals of discretized differential systems on a set of random collocation points with respect to the trainable parameters of the neural network, achieving unprecedented resolution and optimal scaling for solving physical and biological systems.Comment: Accepted for publication at NeurIPS 2022 (ML4PS workshop). arXiv admin note: substantial text overlap with arXiv:2210.1431		
	versions		versions			