Physically Recurrent Neural Networks for accelerating multiscale simulations of complex materials

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Propositions

accompanying the dissertation

PHYSICALLY RECURRENT NEURAL NETWORKS

FOR ACCELERATING MULTISCALE SIMULATIONS OF COMPLEX MATERIALS

by

Marina ALVES MAIA

1. Without benchmarks, a training dataset is as small as the authors want the reader to believe it is. *This proposition pertains to this dissertation.*
2. The true strength of an approximate model begins where the training set ends. *This proposition pertains to this dissertation.*
3. Embedding physics into neural networks makes them easier to trust, but harder to apply broadly. *This proposition pertains to this dissertation.*
4. Finding out a new and useful *vim* command feels like an early Christmas gift.
5. Nothing pushes creativity like having a bug in your code.
6. Having a clear finish line is as important as coming up with new ideas to start a project.
7. Rerunning examples for a paper is more draining than a night out after your 30s.
8. The road to confidence is paved with as many failures as successes.
9. Common and uneventful days are the best for decision making. "Don't rush. Tomorrow anything can happen, including nothing" (translated from A natureza das coisas - Flávio José).

These propositions are regarded as opposable and defendable, and have been approved as such by the promotor dr.ir. F.P. van der Meer and co-promotor dr. I.B.C.M. Rocha.