BACKPROPAGATION IN CHAOTIC NEURAL NETWORKS

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1.2. **Main results.**

2. Unstable neural networks

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2.2. **Lyapunov vectors.**

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3. Backpropagation under gradient explosion

3.1. **Conventional difficulty.**

3.2. **Backpropagation via adjoint shadowing.**

3.3. **Kernel differentiation method.** [1][2][2][3]

References

[1] Mohammad Abu-Zurayk and Joël Brezillon. Development of the adjoint approach for aeroelastic wing optimization, 2013.

[2] Marc Gerritsma, Peter Vos, and Jan Bart Van Der Steen. Time-dependent polynomial chaos. AIP Conference Proceedings, 1048:221–224, 2008.

[3] Igor Baseski, Dorin Drignei, Zissimos P Mourelatos, Monica Majcher, and Rochester Mi. A new metamodeling approach for time - dependent reliability of dynamic systems with random parameters excited by input random processes. 2014.

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