MORPHOLOGICAL CONTROL AND COMPUTATION

A DYNAMICAL SYSTEM APPROACH

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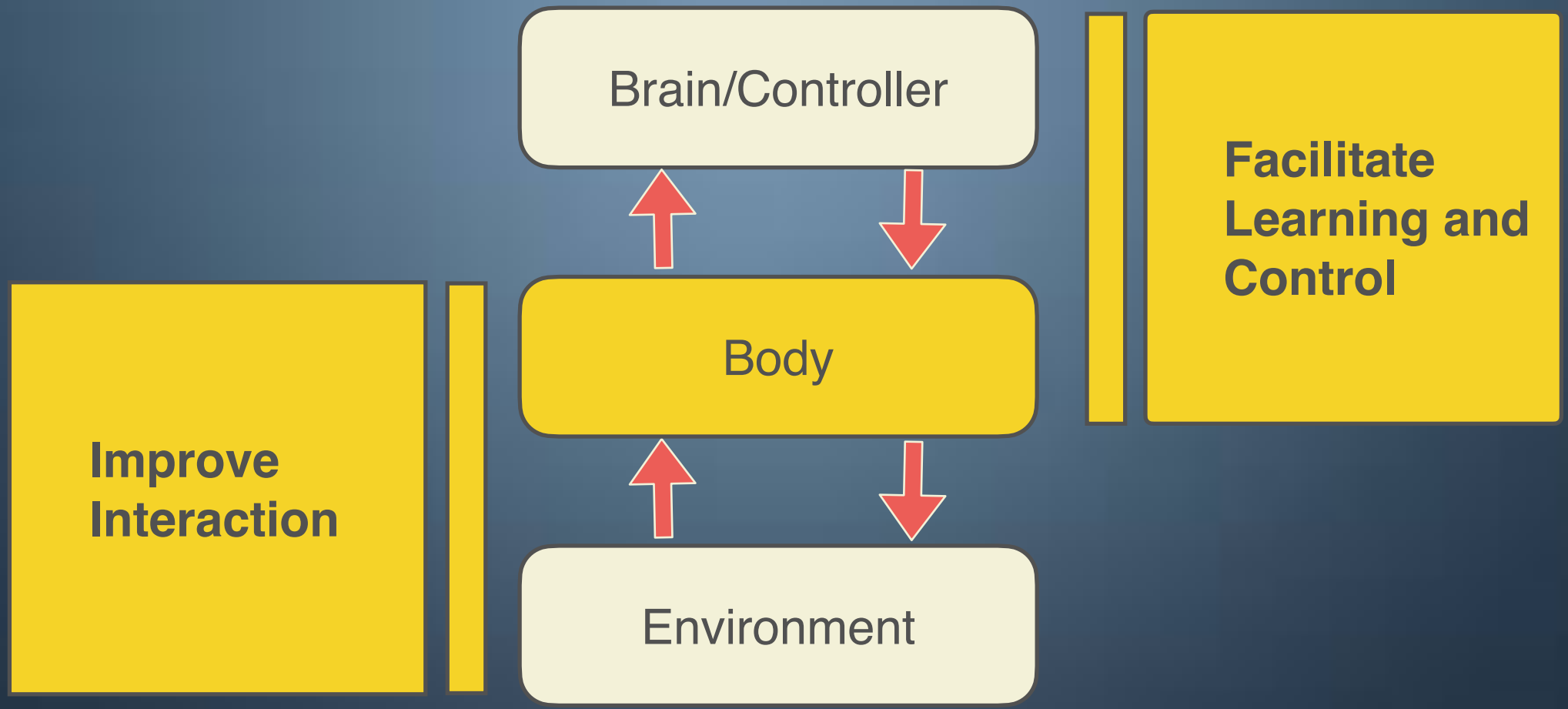
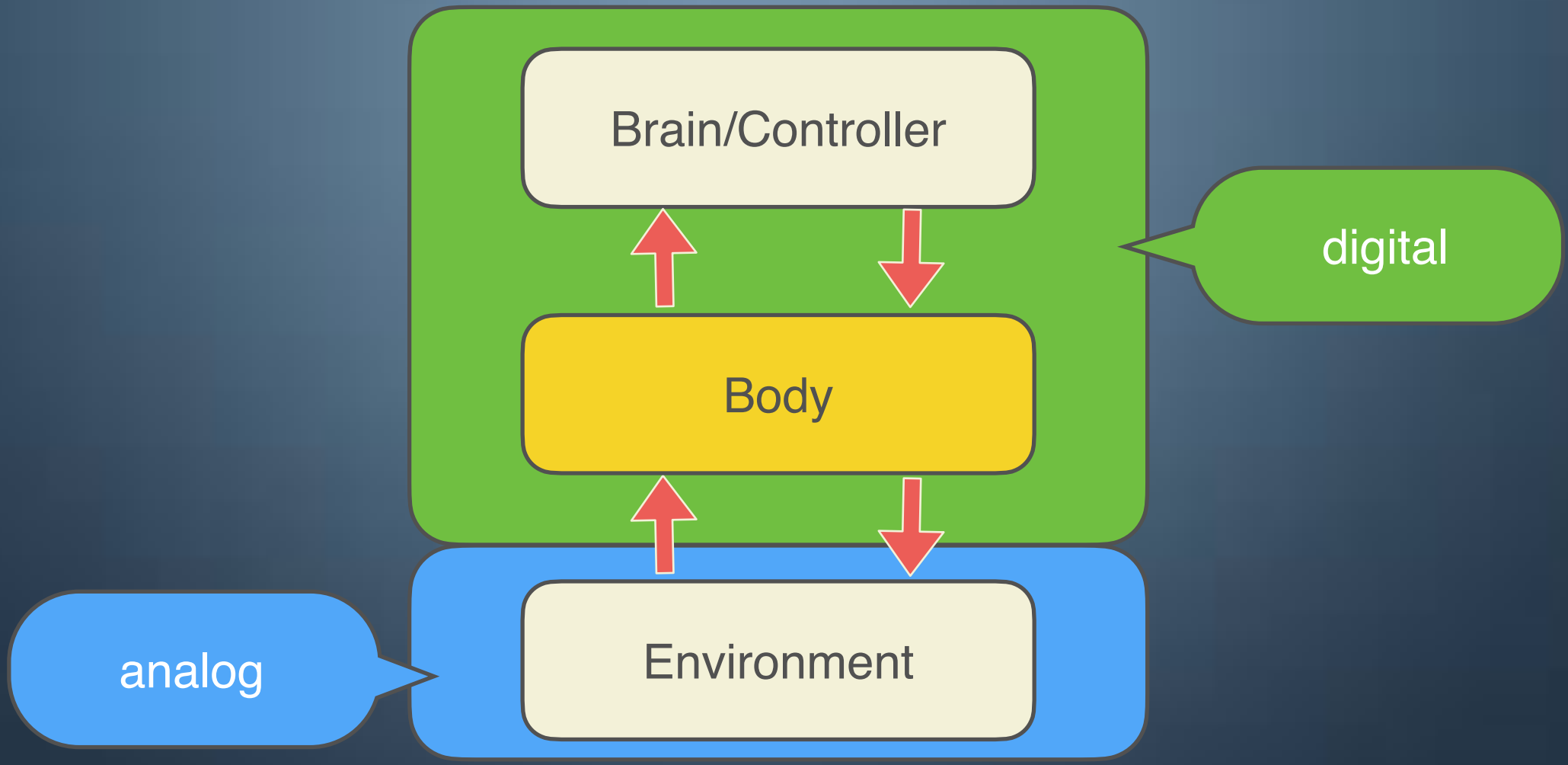
MORPHOLOGICAL COMPUTATION

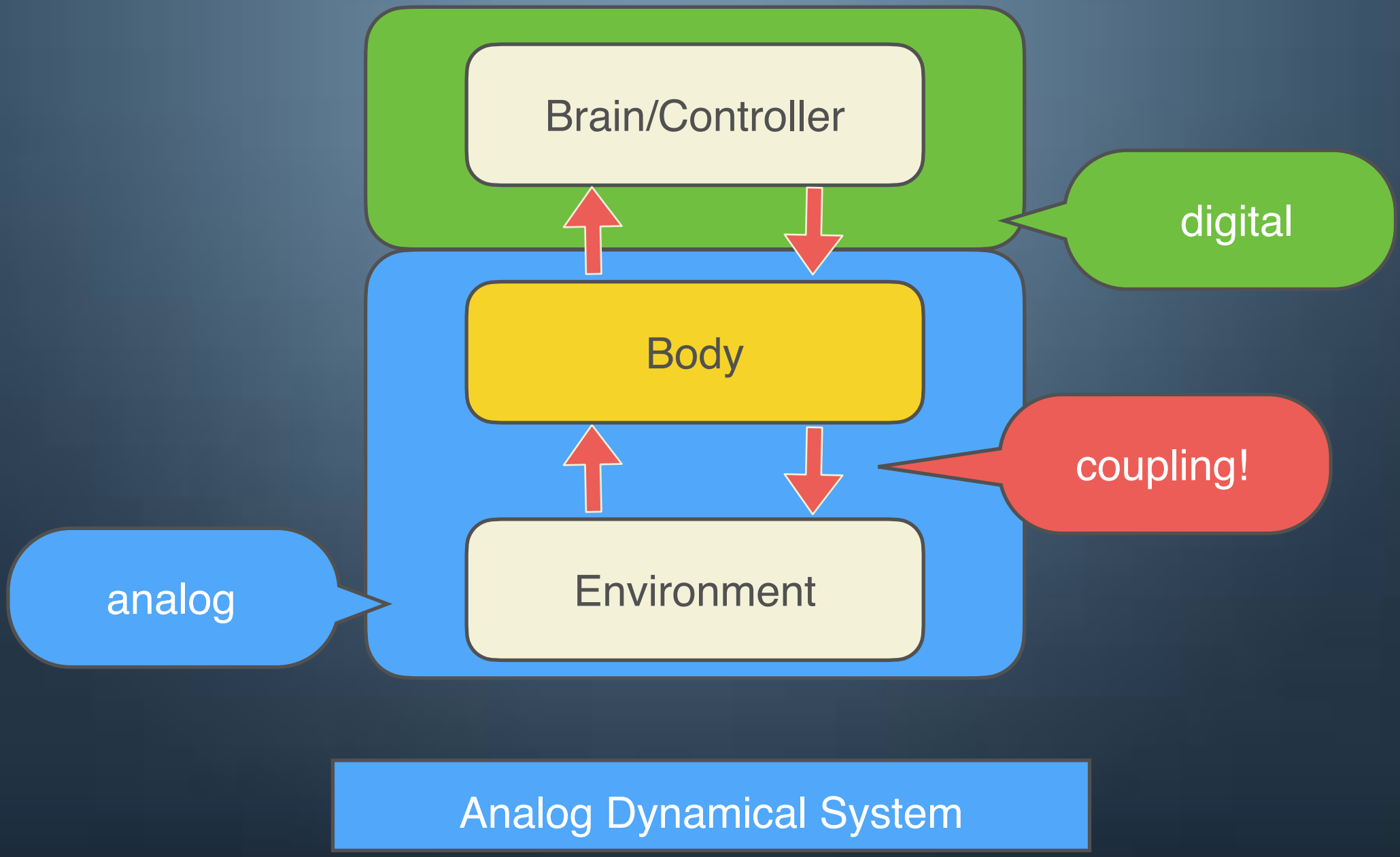


What's the right framework?

STANDARD COMPUTATION / CONTROL APPROACH



MORPHOLOGICAL COMPUTATION



SOME IDEAS FOR DISCUSSION

Morphology = Analog Dynamical System

Control = Analog Dynamical System

Computation = Analog Dynamical System

Sensing = Analog Dynamical System

Growth = Analog Dynamical System

Learning = Analog Dynamical System

SOME IDEAS FOR DISCUSSION

Analog dynamical system approach is natural

Analog dynamical system approach is more inclusive

Analog dynamical system approach opens possibilities

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https://www.morphologicalcomputation.org

MORE INFORMATION

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theory Hauser, H. et al. "The role of feedback in morphological computation with compliant bodies" Biological Cybernetics, Springer Berlin / Heidelberg, (2012), 106, 595-613 https://link.springer.com/article/10.1007/s00422-012-0516-4

intro Hauser, H.; Füchslin, R.M.; Nakajima, K. “Morphological Computation – The Physical Body as a Computational Resource" Opinions and Outlooks on Morphological Computation, editors Hauser, H.; Füchslin, R.M. and Pfeifer, R., Chapter 20, pp 226-244, 2014, ISBN 978-3-033-04515-6 https://www.dropbox.com/s/zg79mw35nvq4bba/Chapter_20_Hauser.pdf?dl=0

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app. many others in real robots in sensing, actuation, learning and control – contact me if you want more information