



CENTER FOR MEDICAL DATA SCIENCE
MEDICAL UNIVERSITY OF VIENNA
Institute of Artificial Intelligence

Institute of Artificial Intelligence

Stephan Reichl

Center for Medical Data Science
Medical University of Vienna

Institute of Artificial Intelligence



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Christoph Bock

Machine Learning in Biomedicine



Georg Dorffner

Machine Learning for Prediction
and Signal Processing

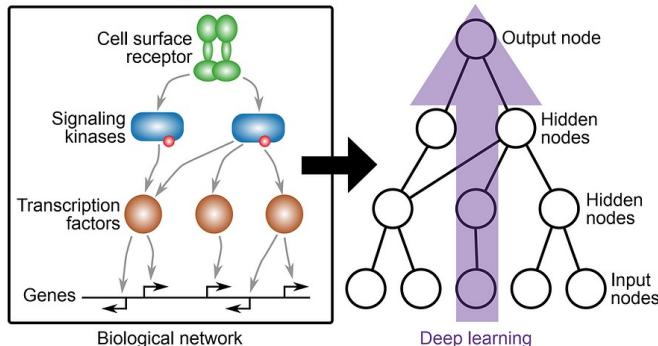


Matthias Samwald

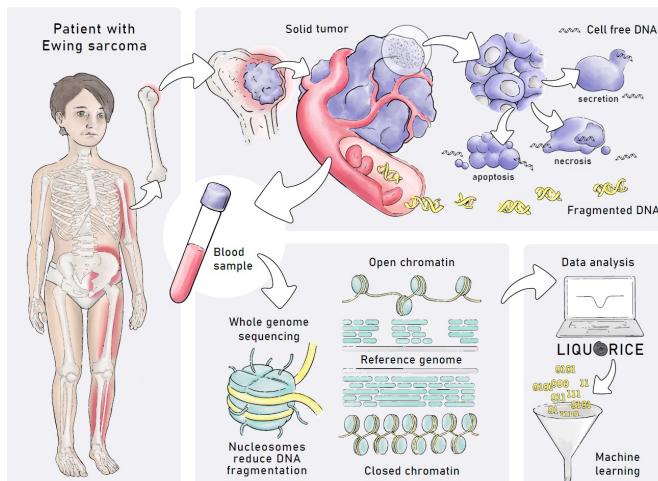
Generative AI

Bock Group: Machine Learning in Biomedicine

Interpretable Deep Learning with Knowledge Primed Neural Networks¹



Machine Learning for Precision Medicine²



Christoph Bock

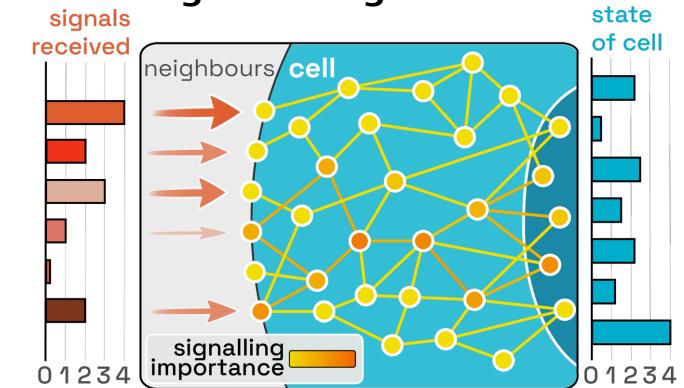


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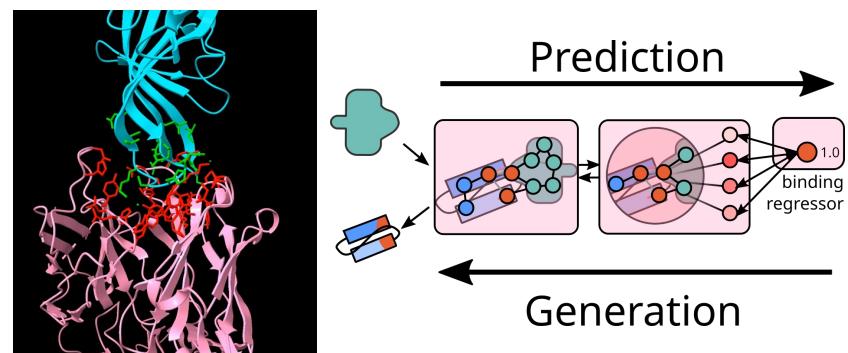


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Modeling Cell Communication Signal Flow with Message Passing Neural Networks³

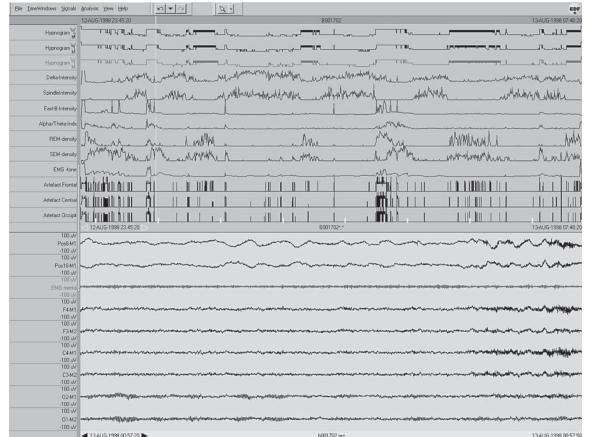


Generative Modeling for Protein Design⁴

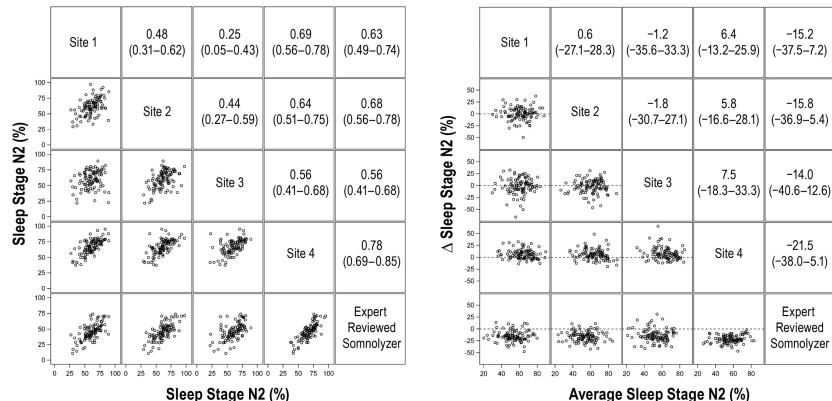


¹Fortelny et al. (2020) *Genome Biology*; ²Peneder et al. (2021) *Nature Communications*; ³Bednarsky et al.; ⁴Schaefer et al.

Dorffner Group: Machine Learning for Prediction and Signal Processing



Somnolyzer
AI for Automated Sleep Staging^{1,2}

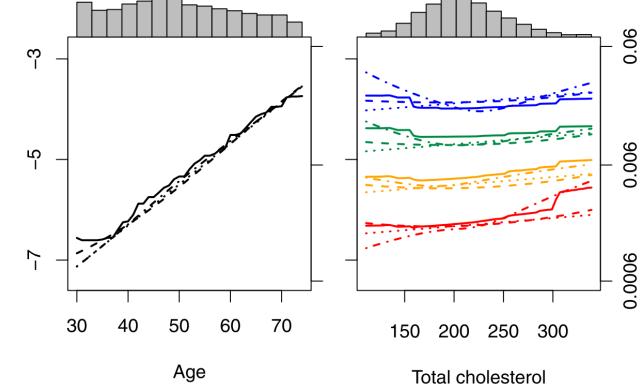


Georg Dorffner

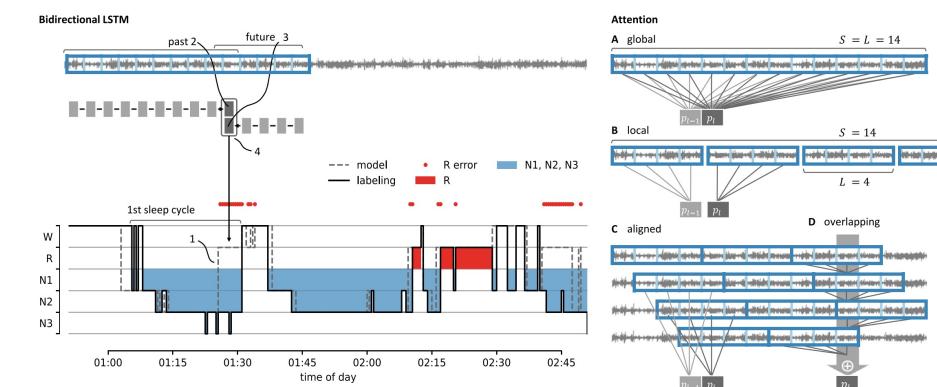


[www.meduniwien.ac.at
/user/georg.dorffner](http://www.meduniwien.ac.at/user/georg.dorffner)

Cardiovascular Risk Prediction³



Transformers for EEG Processing⁴



¹Anderer et al. (2010) *Neuropsychiology*; ²Punjabi et al. (2015) *Sleep*; ³Wallisch et al. (2021) *BMC Med Res Meth*; ⁴Brandmayer et al. (2022) *Neural Networks*

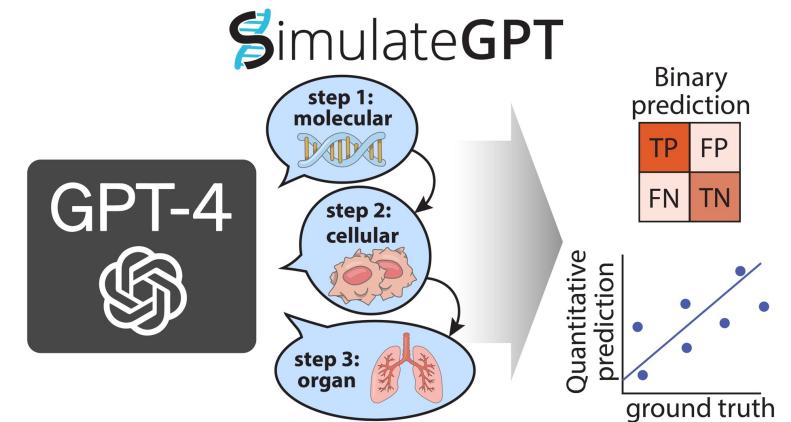
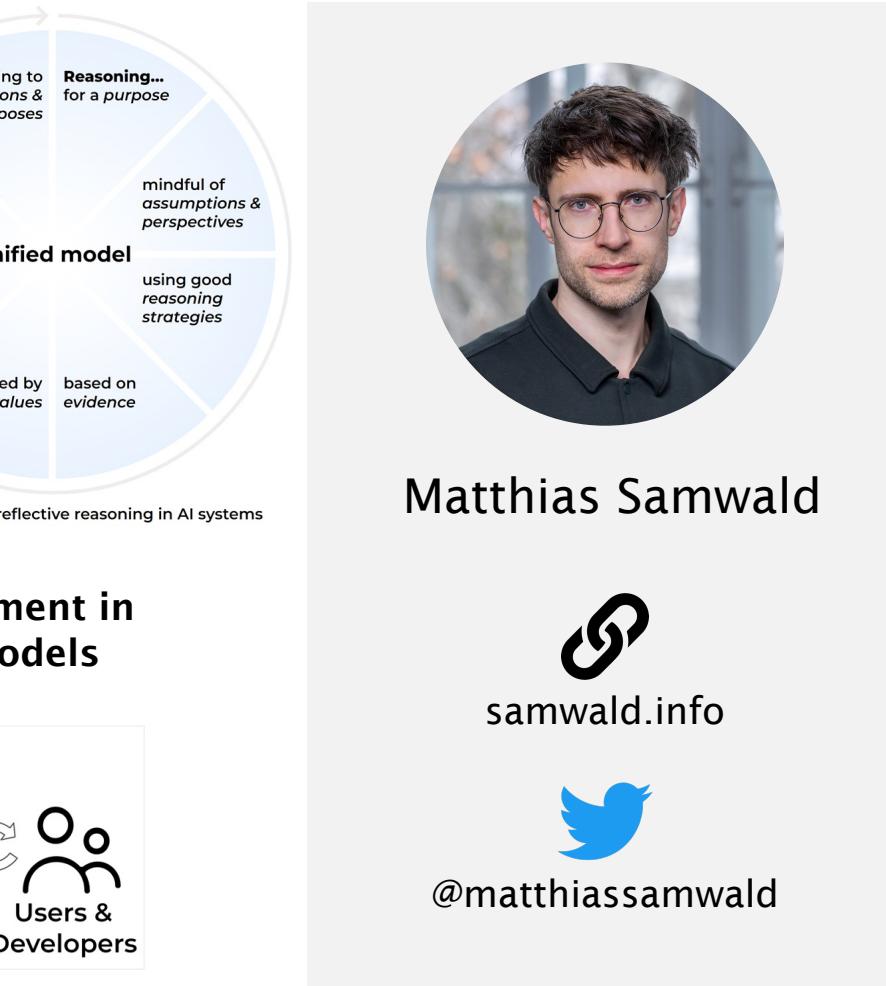
Samwald Group: Generative AI



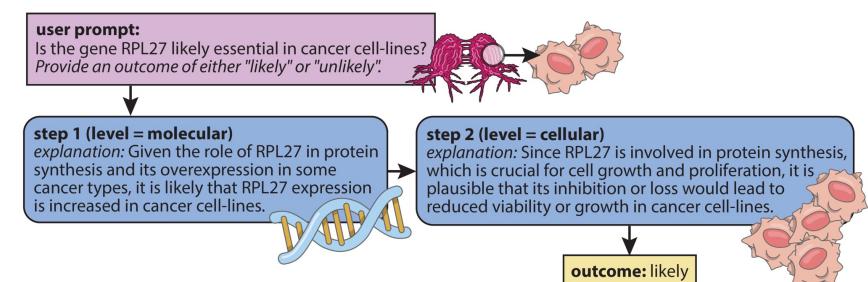
Hundreds of principles from literature on AI, human cognition, ethics and other disciplines

A unified model for self-reflective reasoning in AI systems

Self-reflection and self-improvement in language-based foundation models

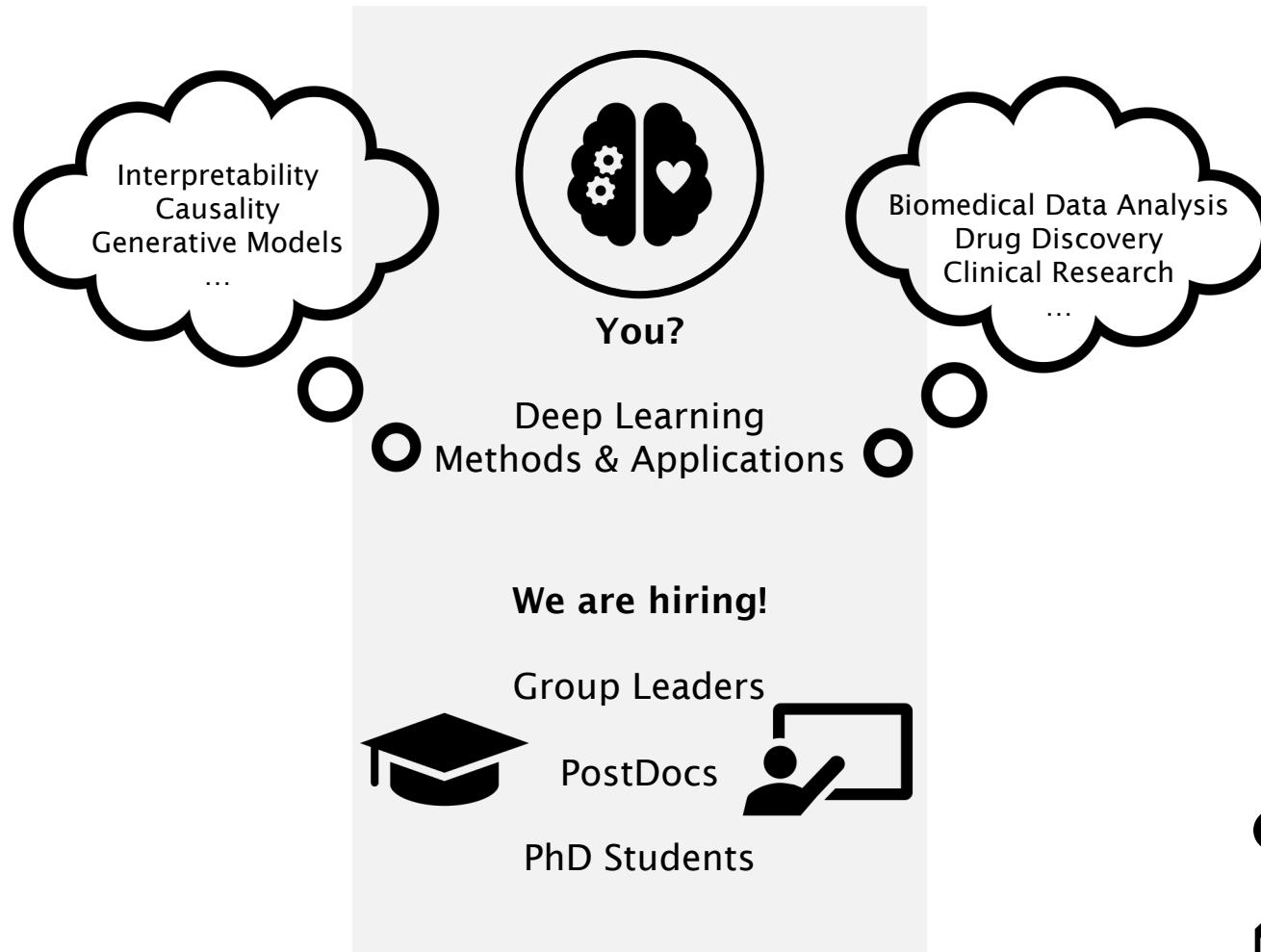


Large language models as universal biomedical simulators¹



¹Schaefer, Reichl, ter Horst, Nicolas, Krausgruber, Piras, Stepper, Bock, Samwald. Large language models are universal biomedical simulators. (2023) *bioRxiv*

Interested in joining?



How to find and contact us?



ai.meduniwien.ac.at/en/

sec-ai@meduniwien.ac.at

Währingerstraße 25a
1090 Vienna
(behind Joesphinum)