Learning the language of sleep with AI

James Zou

Stanford University

www.james-zou.com

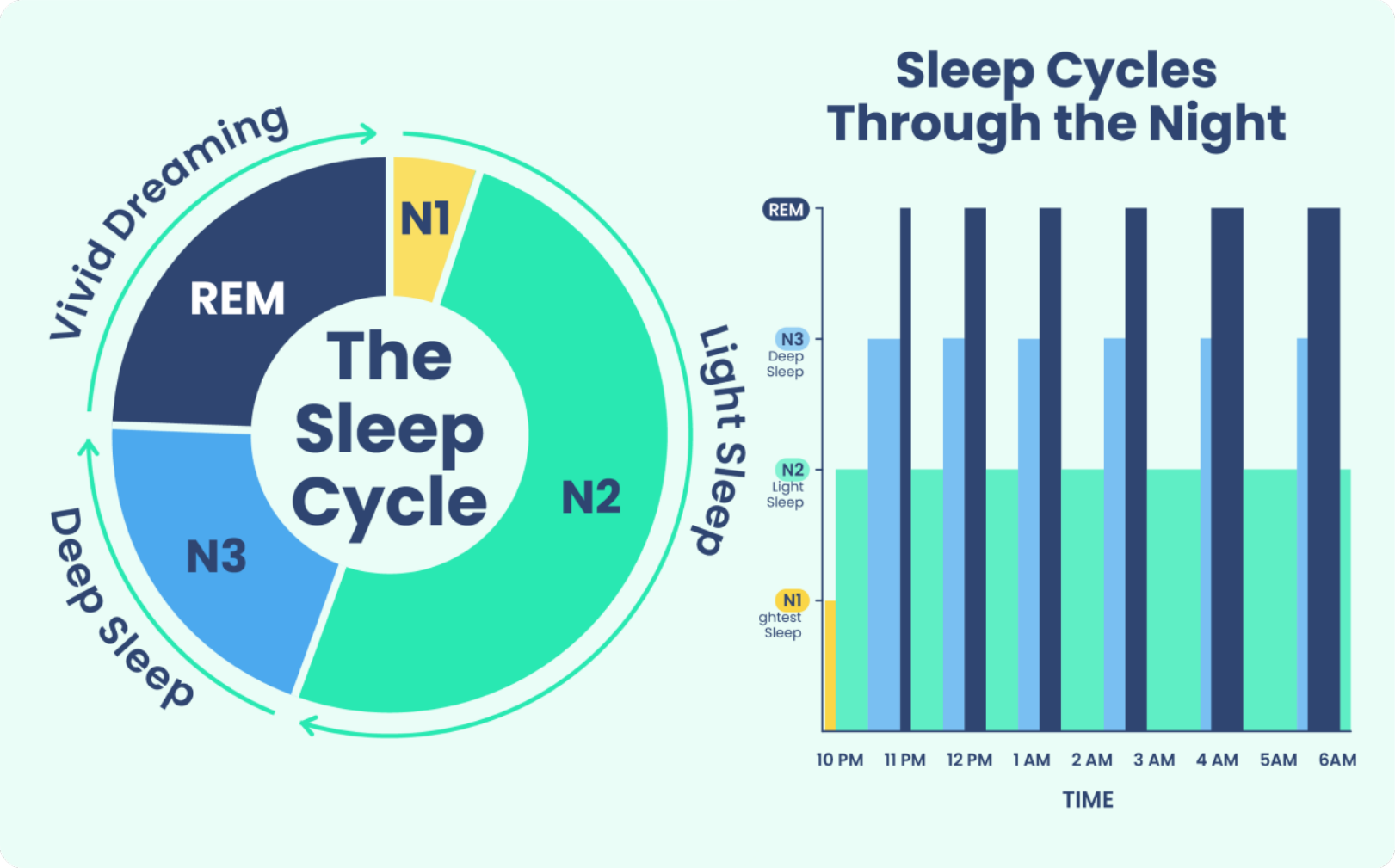
jamesz@stanford.edu

Understanding the health implications of sleep

From one night of sleep, we can predict risks for130 diseases with SleepFM.

Thapa et al. *Nature Medicine* 2026

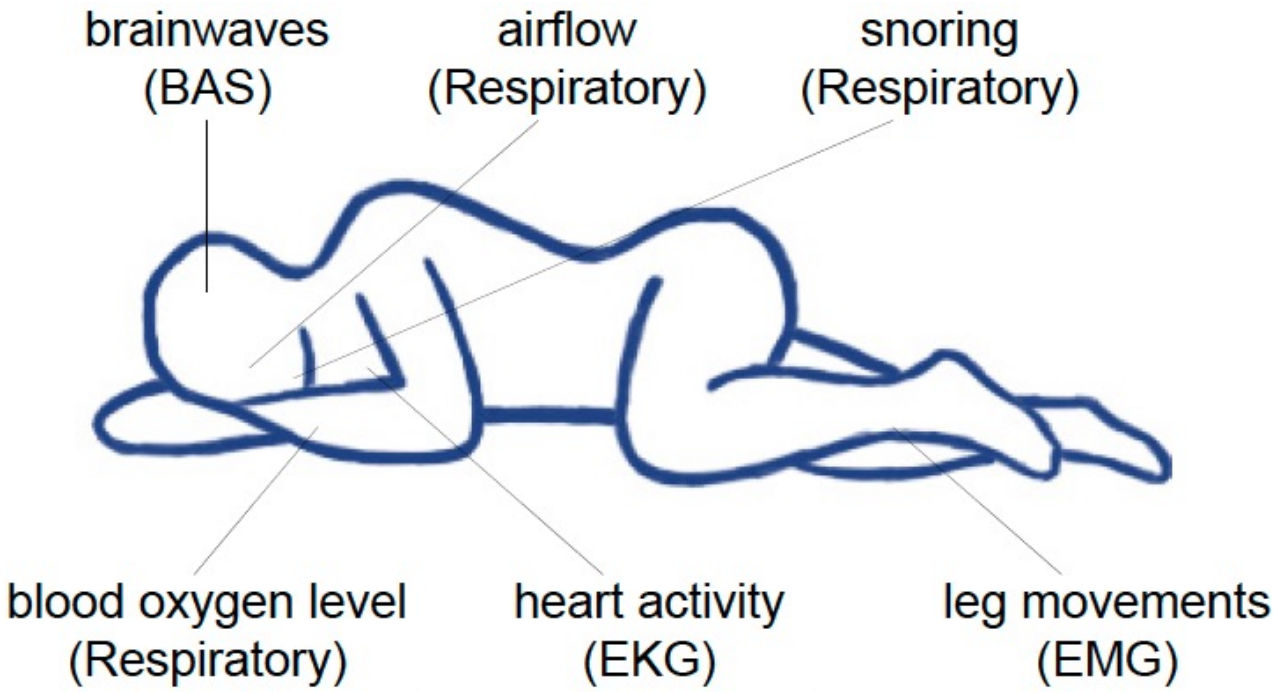
We spend 1/3 of our lives asleep, but it's underexplored by AI

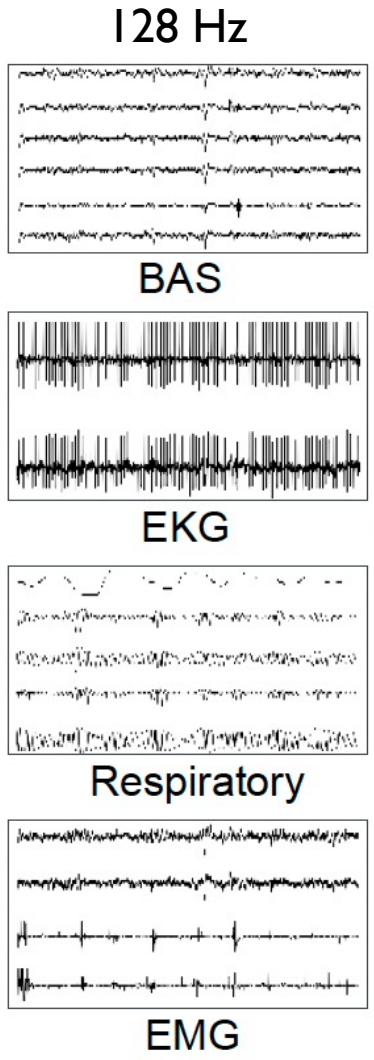


Sleep Foundation

Collecting a large sleep dataset

Multi-modal measurement of sleep





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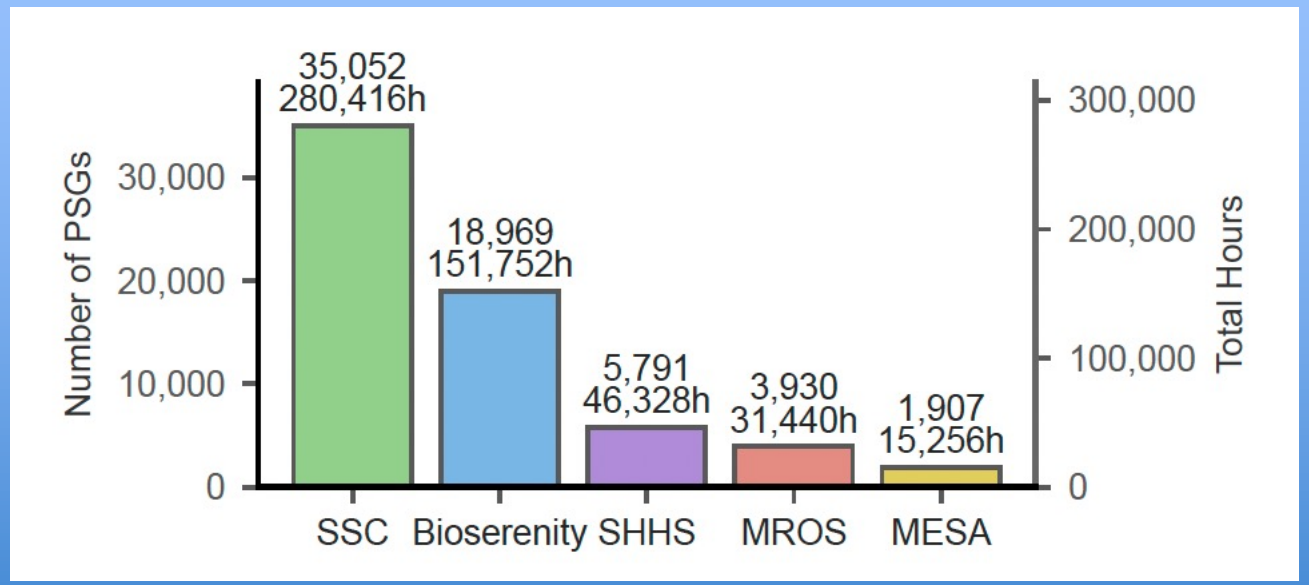
Collecting a large sleep dataset

>580,000 hours of sleep recording from 65K participants

Linked to EHR



EMG

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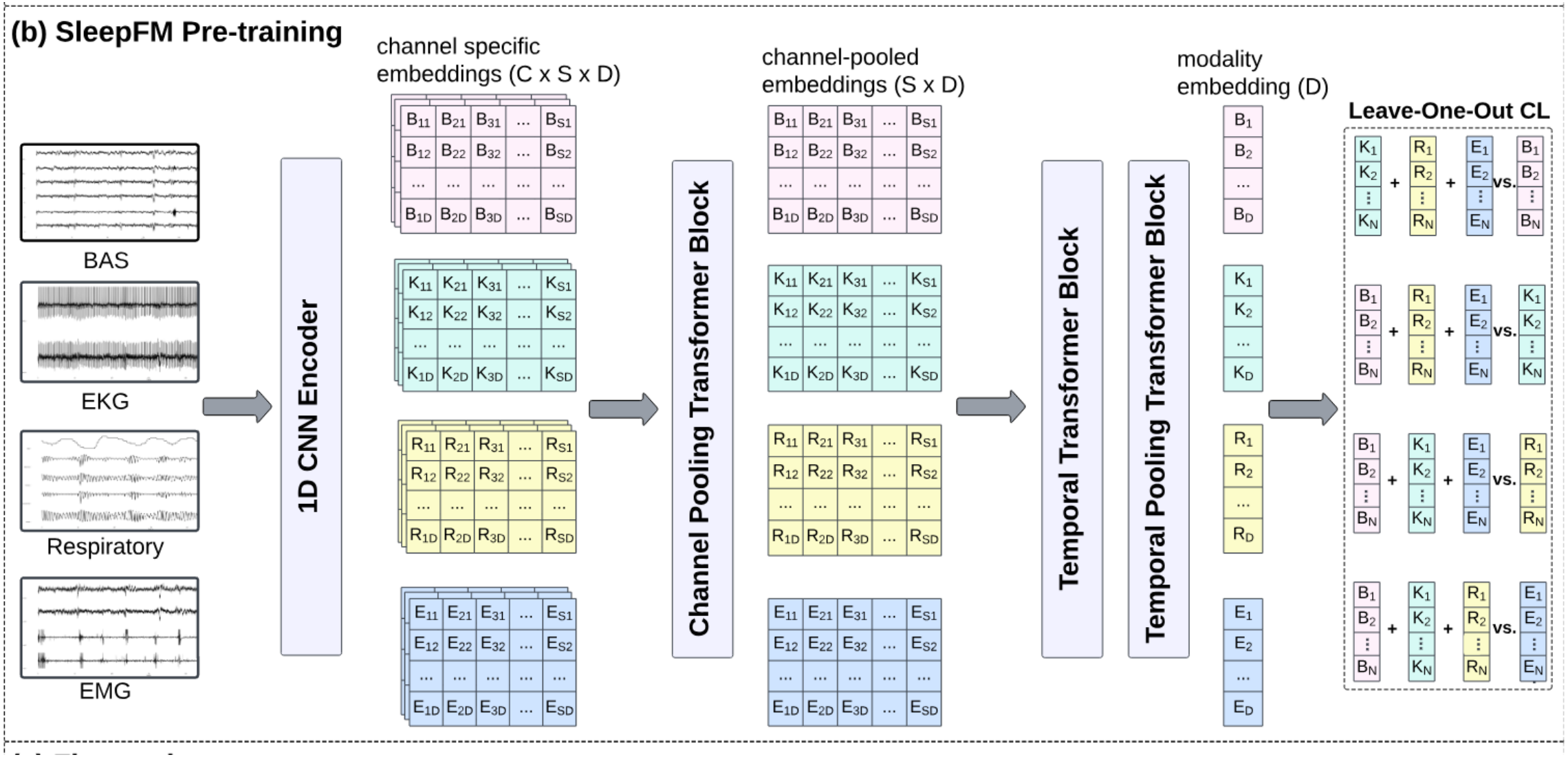
SleepFM: Learning the language of sleep



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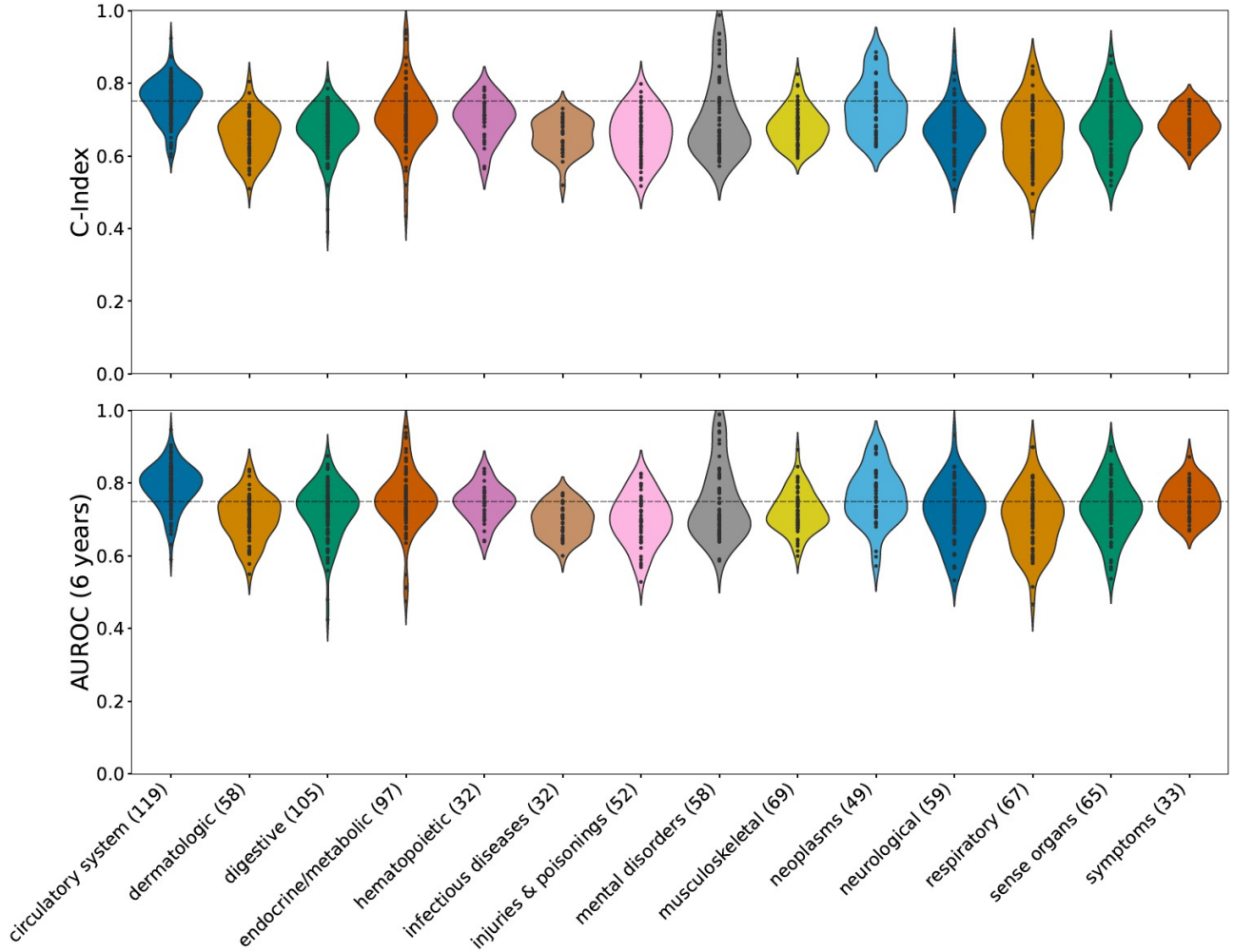
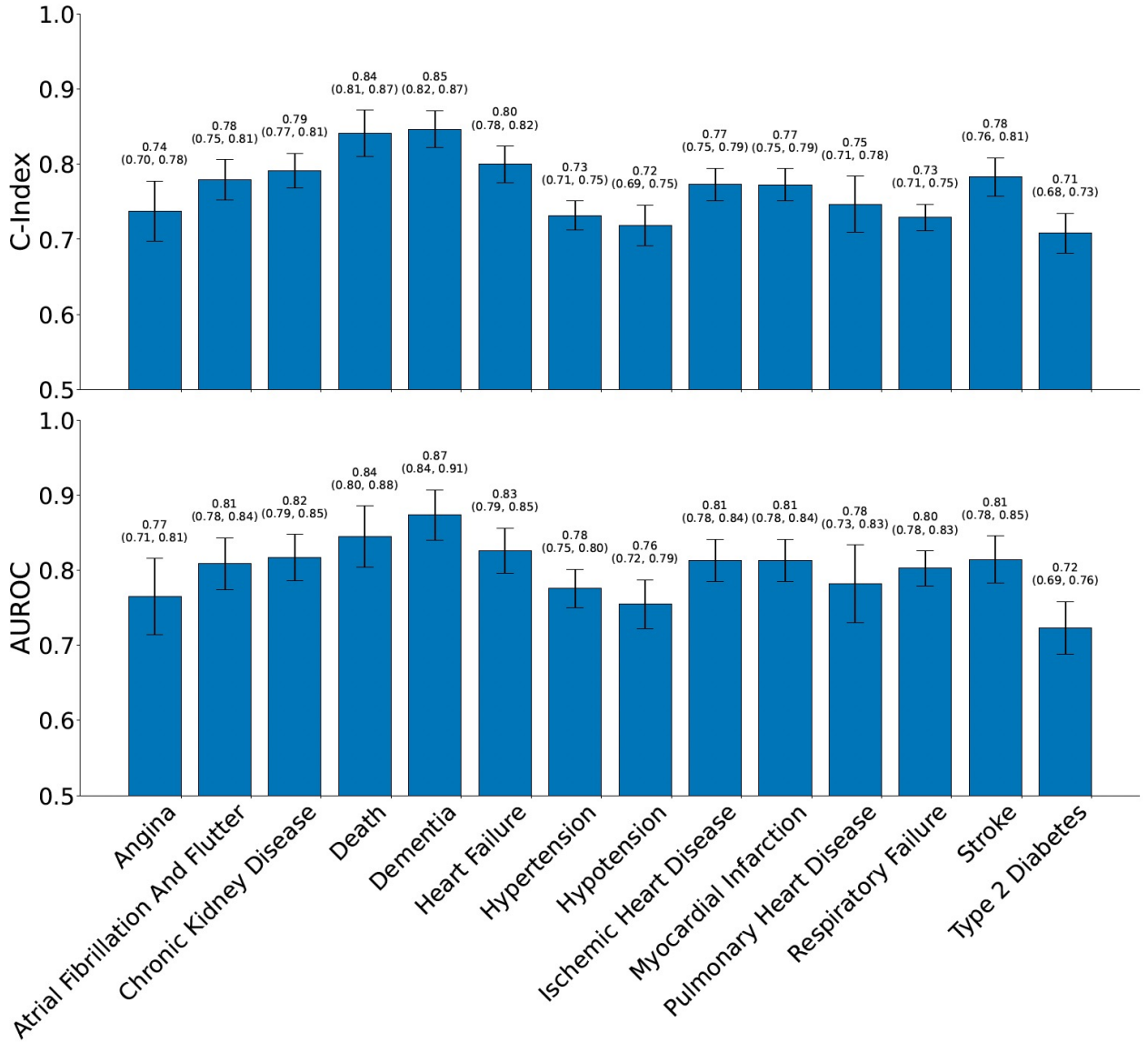
SleepFM predicts risks of diverse diseases



130 diseases with C-index >0.75

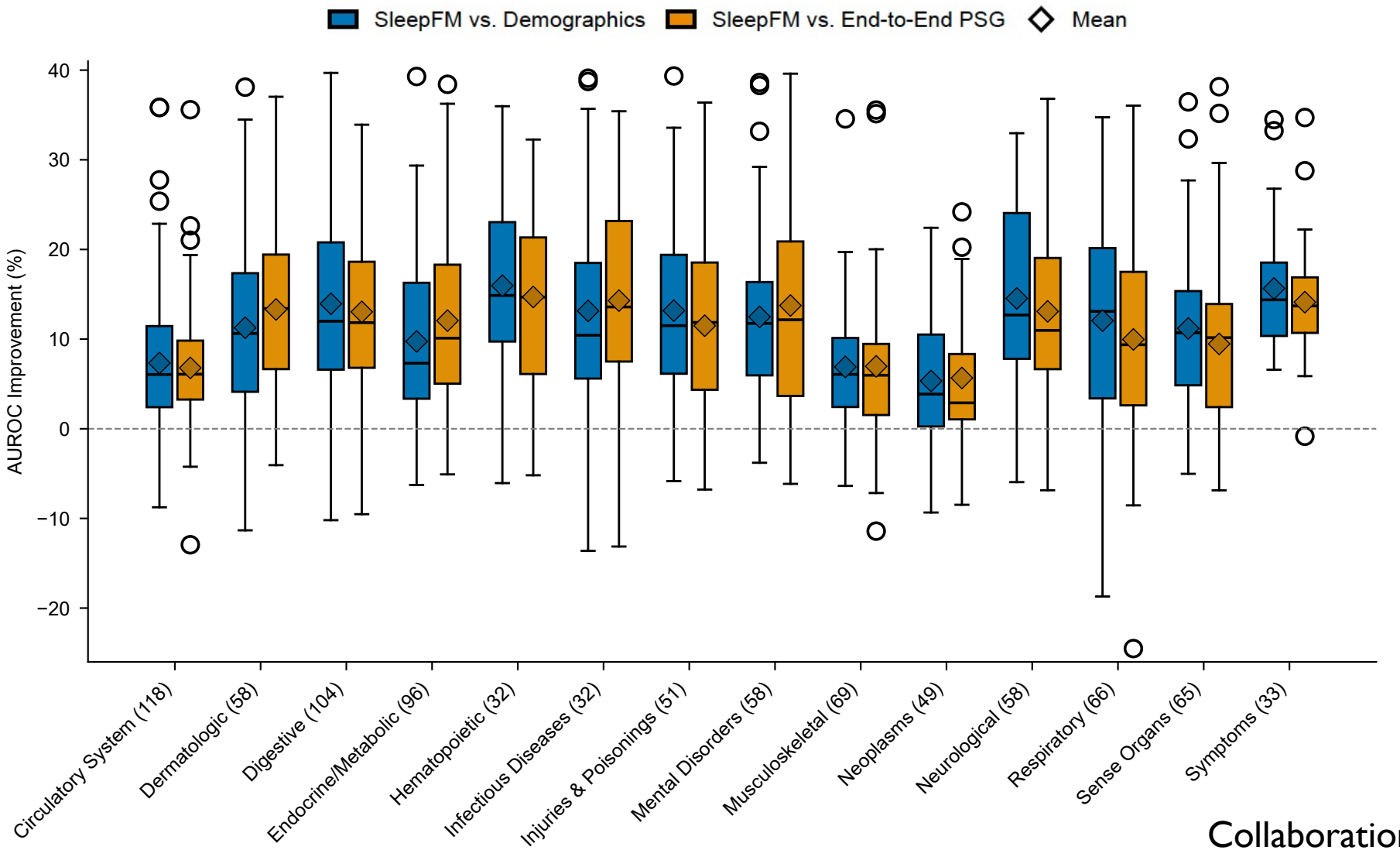
Collaboration w/ Mignot Lab

SleepFM predicts risks of diverse diseases



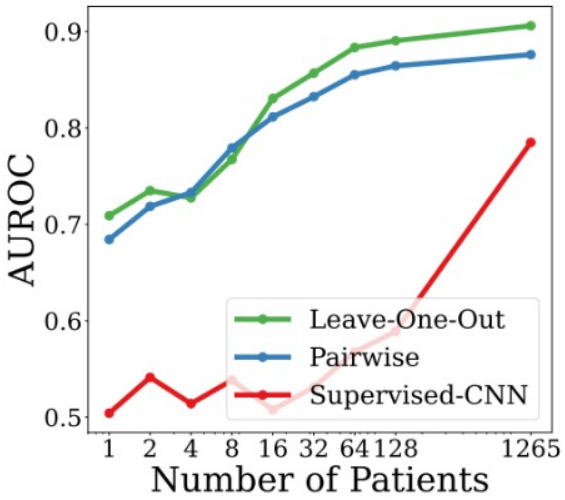
Collaboration w/ Mignot Lab

SleepFM learns effective representation of sleep

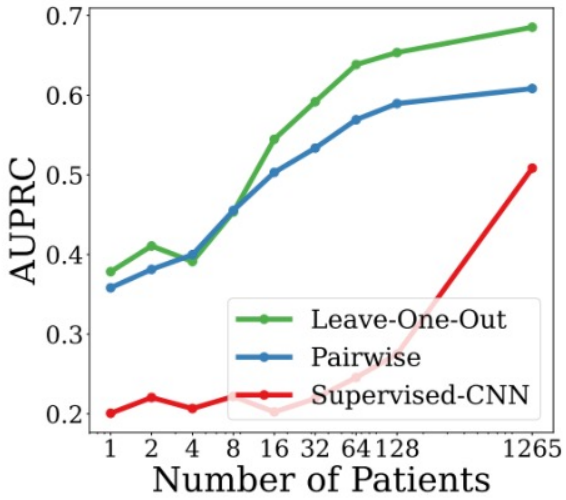


Collaboration w/ Mignot Lab

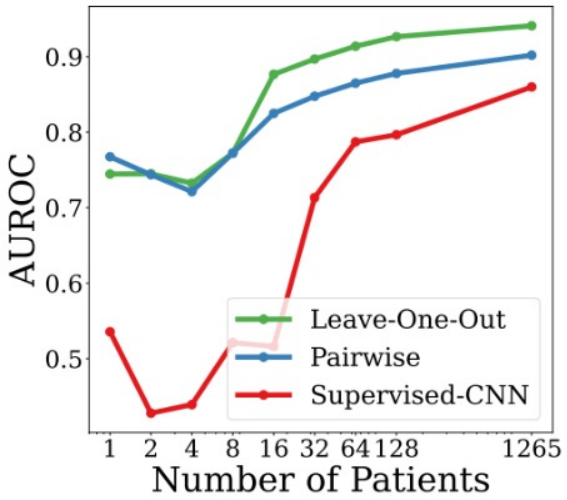
Benefit of the sleep foundation model



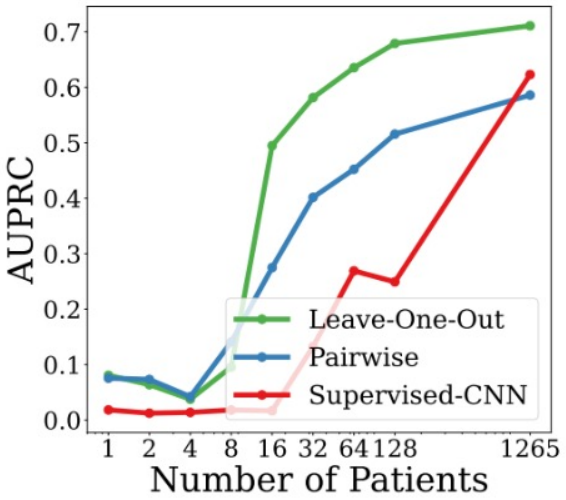
(a) Sleep Stages AUROC



(b) Sleep Stages AUPRC



(c) SDB AUROC



(d) SDB AUPRC

Scientific insights

- REM sleep stage most predictive for many diseases including dementia, chronic kidney disease, hypertension.
- Brain activity signal more predictive for mental and neurological conditions.
- EKG signals more predictive for circulatory conditions.
- SleepFM is open source and open data!

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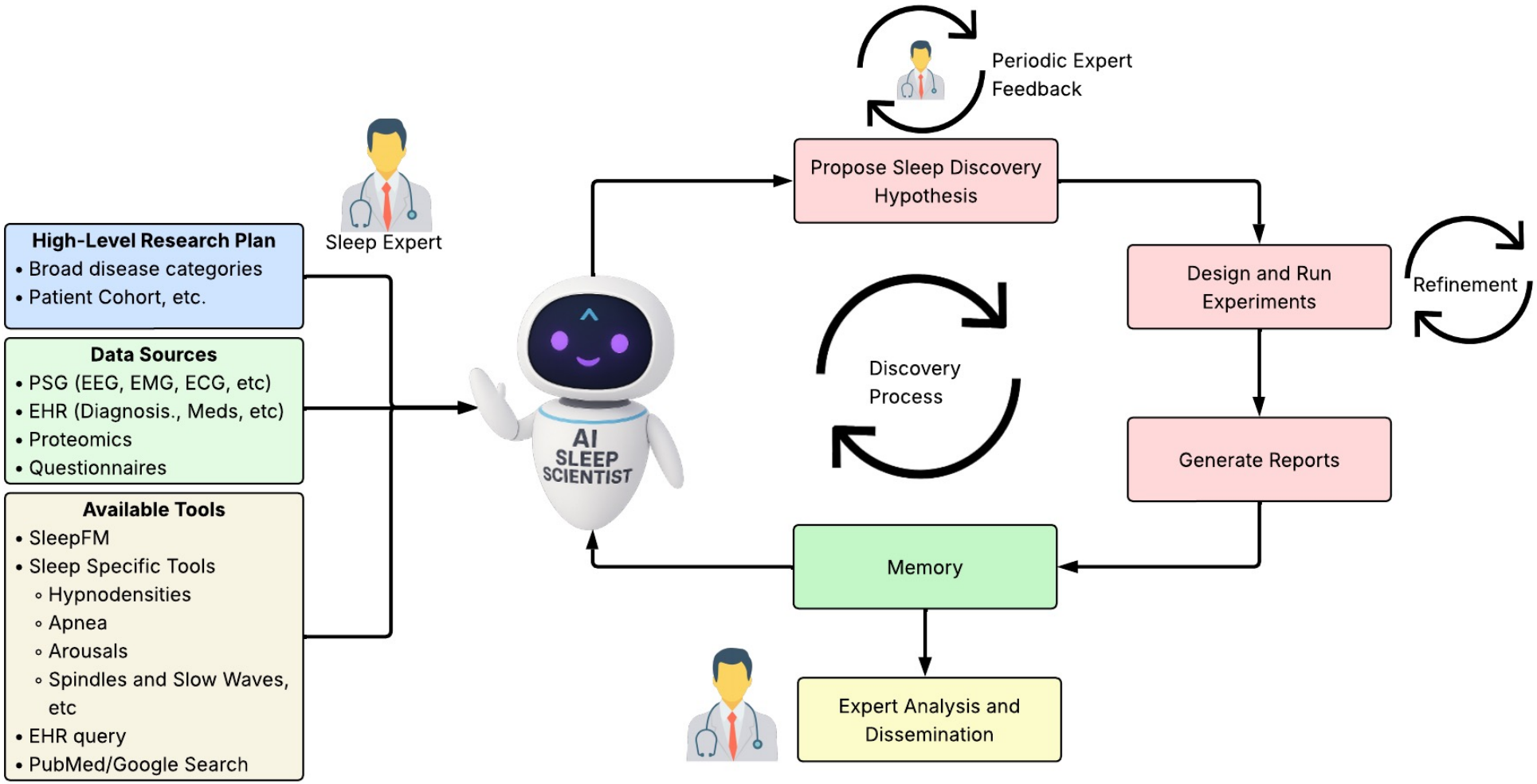
SleepFM agent



Thanks!

SleepFM

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Emmanuel Mignot

Rahul Thapa

Magnus Kjaer

Andreas Brink-Kjaer

Stanford Sleep Clinic

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jamesz@stanford.edu