

Brain Mapping Laboratory

Closed-loop Deep Brain Stimulation

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Making waves...



Deep Brain Stimulation – *A pacemaker for your brain!*



Deep Brain Stimulation – *A pacemaker for your brain!*



Deep Brain Stimulation – *A pacemaker for your brain!*



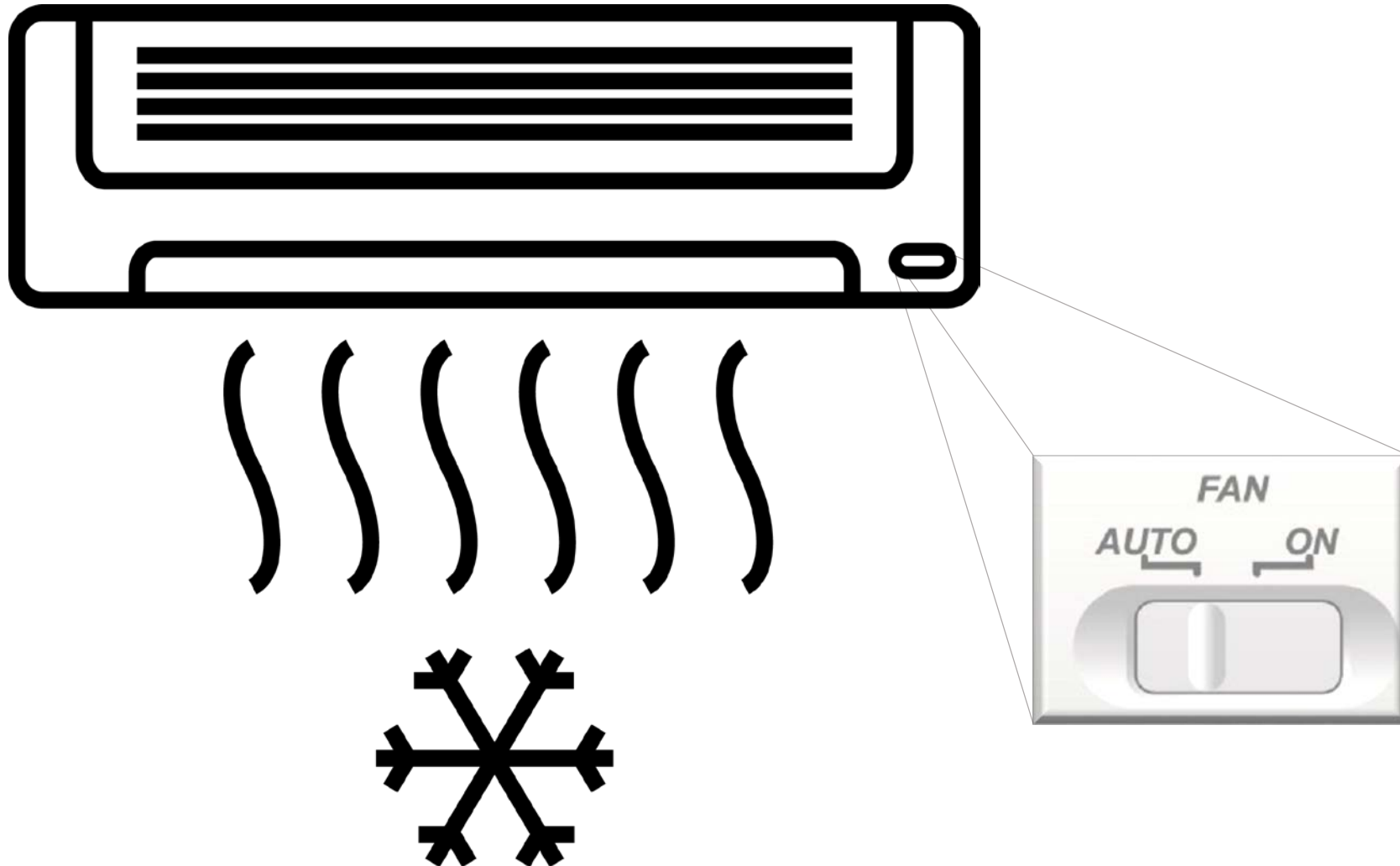
Deep Brain Stimulation – *A pacemaker for your brain!*



Deep Brain Stimulation – *A pacemaker for your brain!*



Seeking a switch from “fan” mode to “auto”

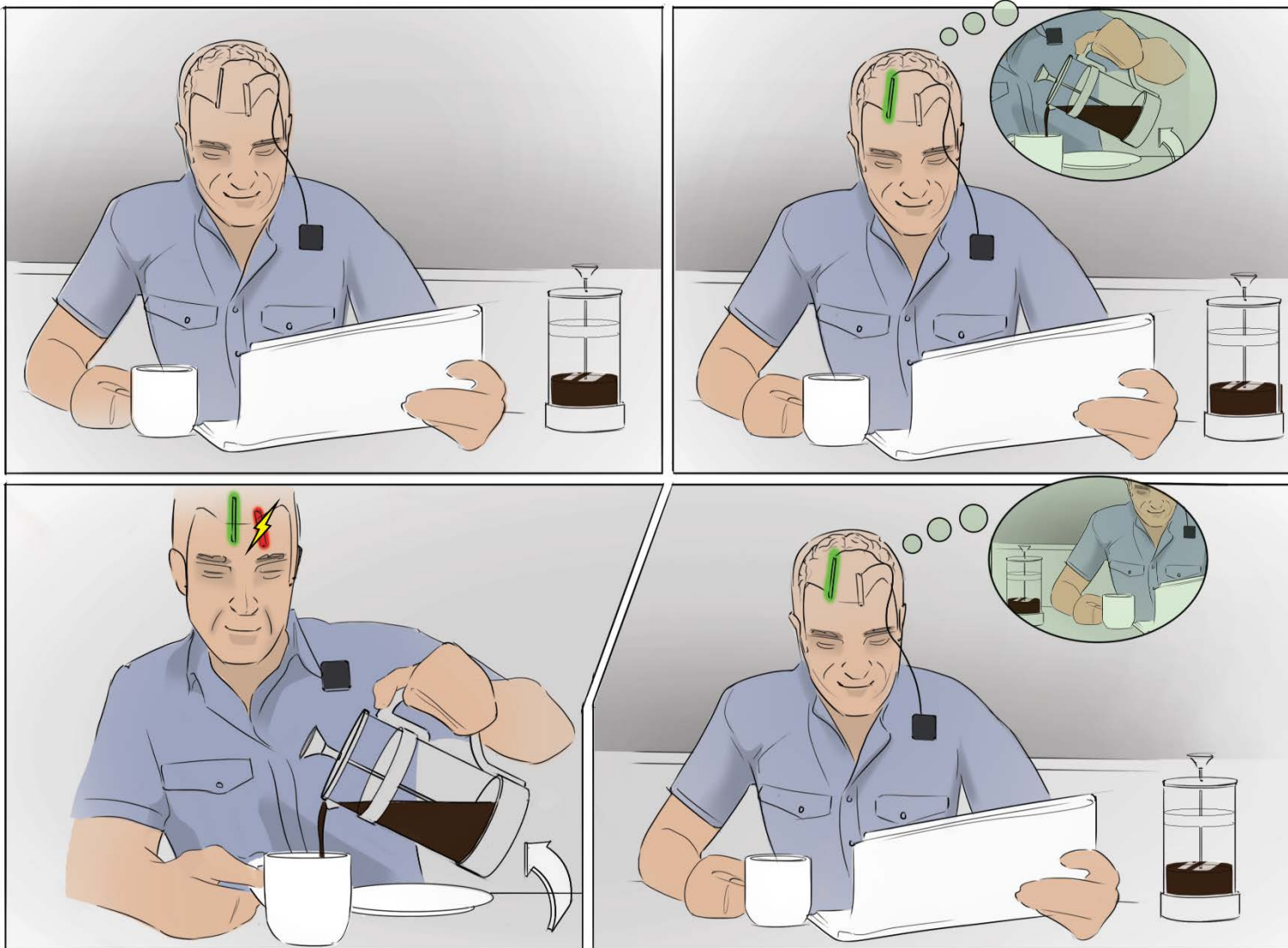


Why listen to the brain?

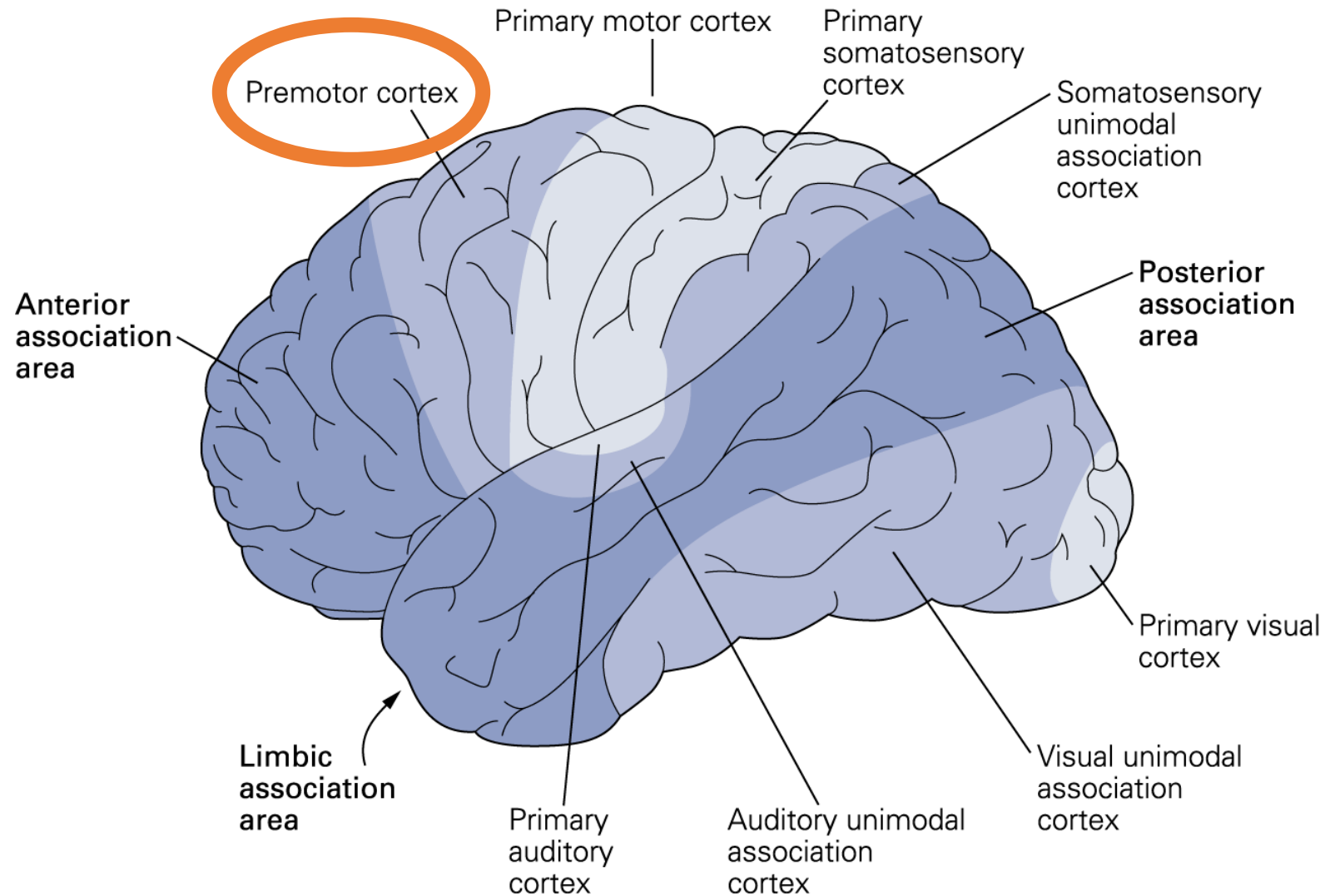
- Inject currents when symptoms are present
 - ✓ Individualize therapy
 - ✓ Reduce side effects
 - ✓ Increase battery life



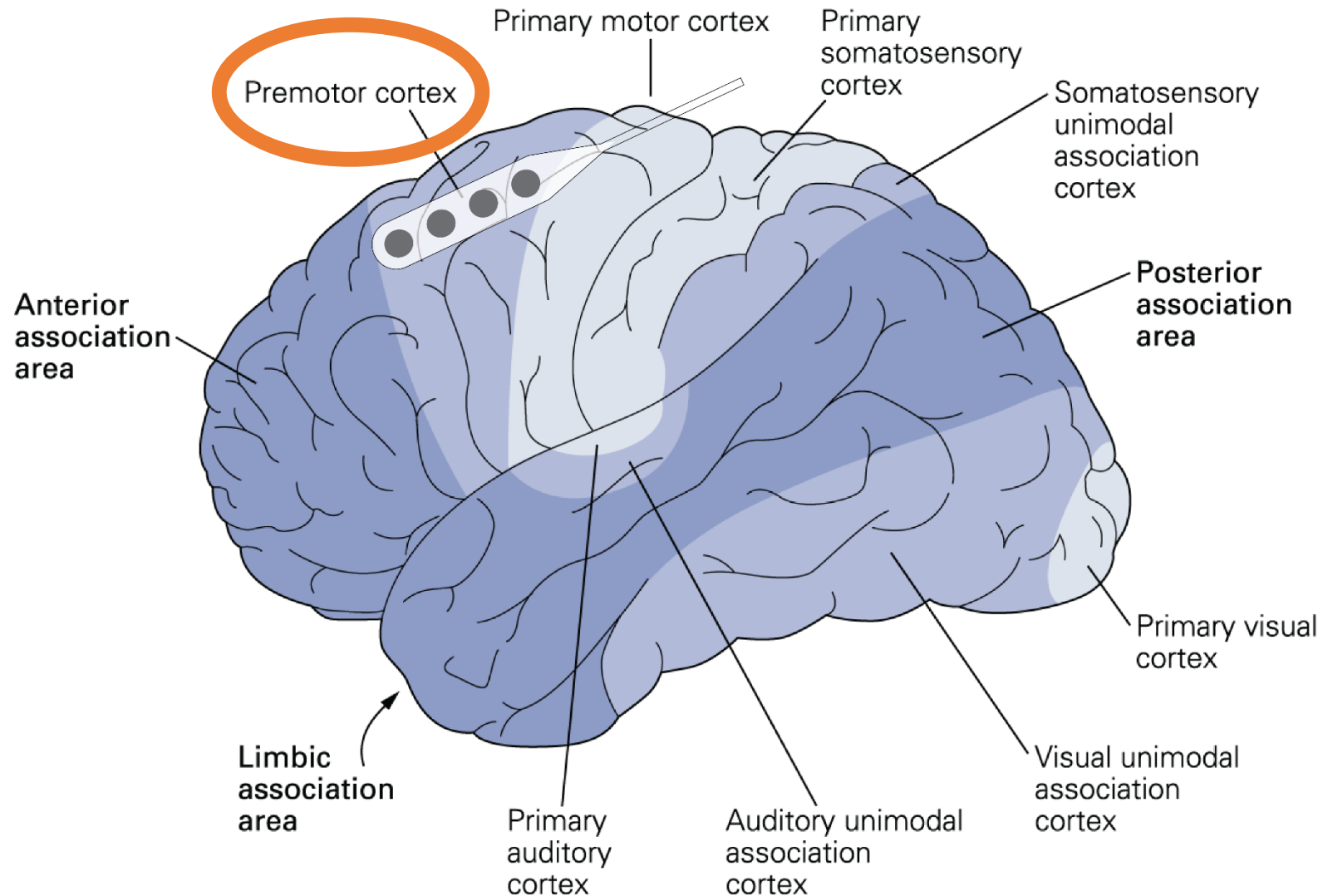
Where to listen?



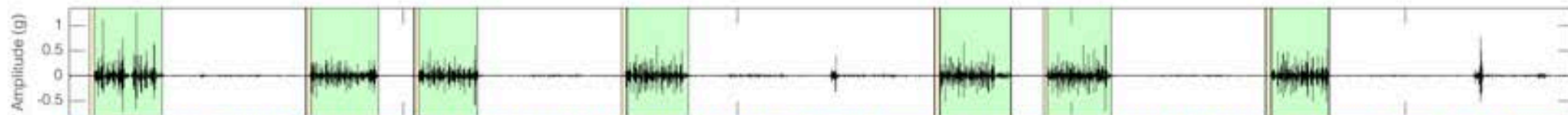
Where to listen?



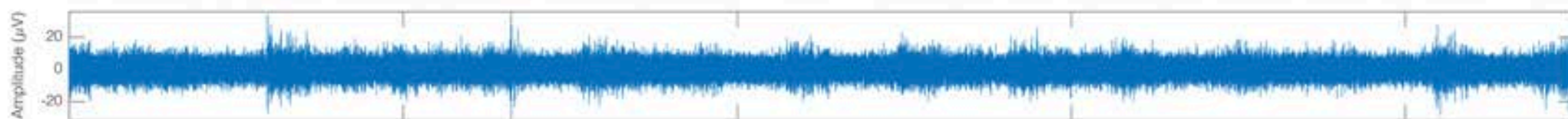
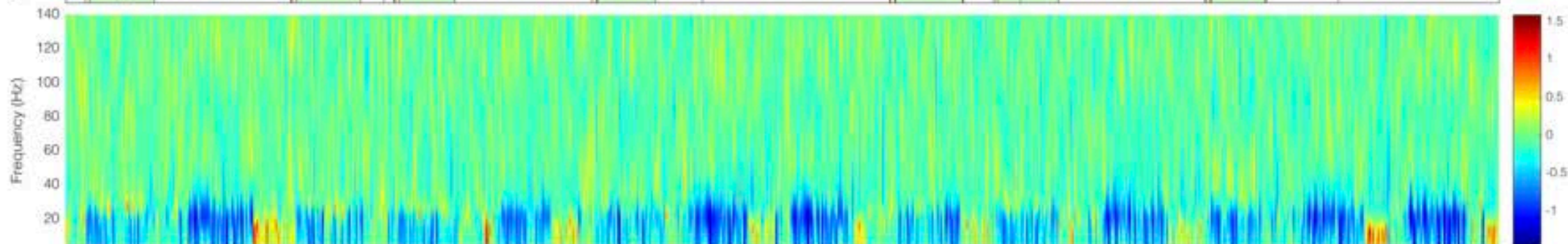
Where to listen?



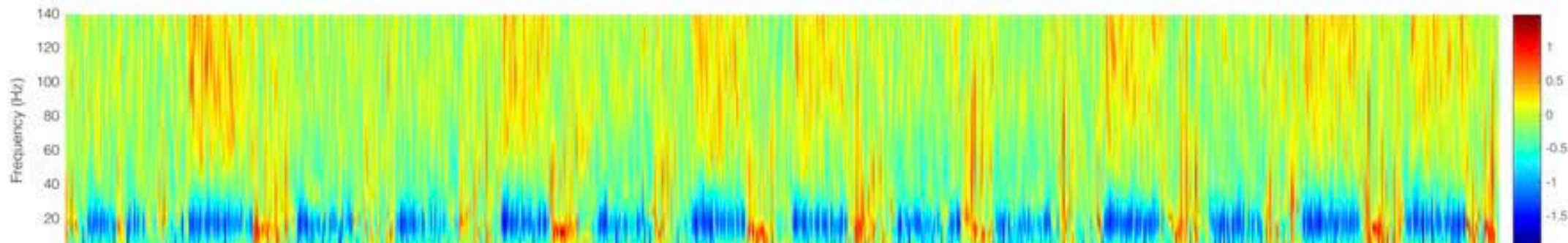
Right hand accel Ch



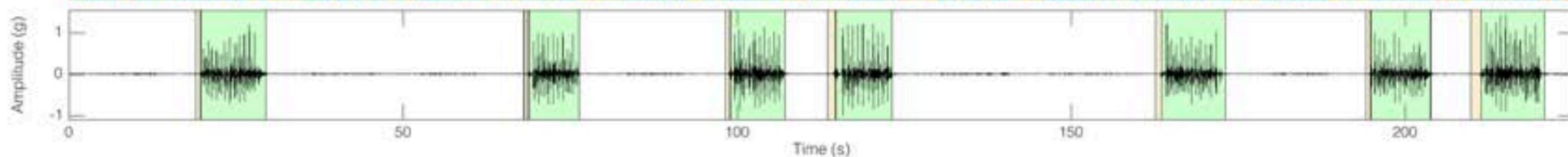
LFP Right THAL2-3 Ch



LFP Right CORT3-4 Ch



Left hand accel Ch



Adaptive Deep Brain Stimulation

[Movie Unavailable]

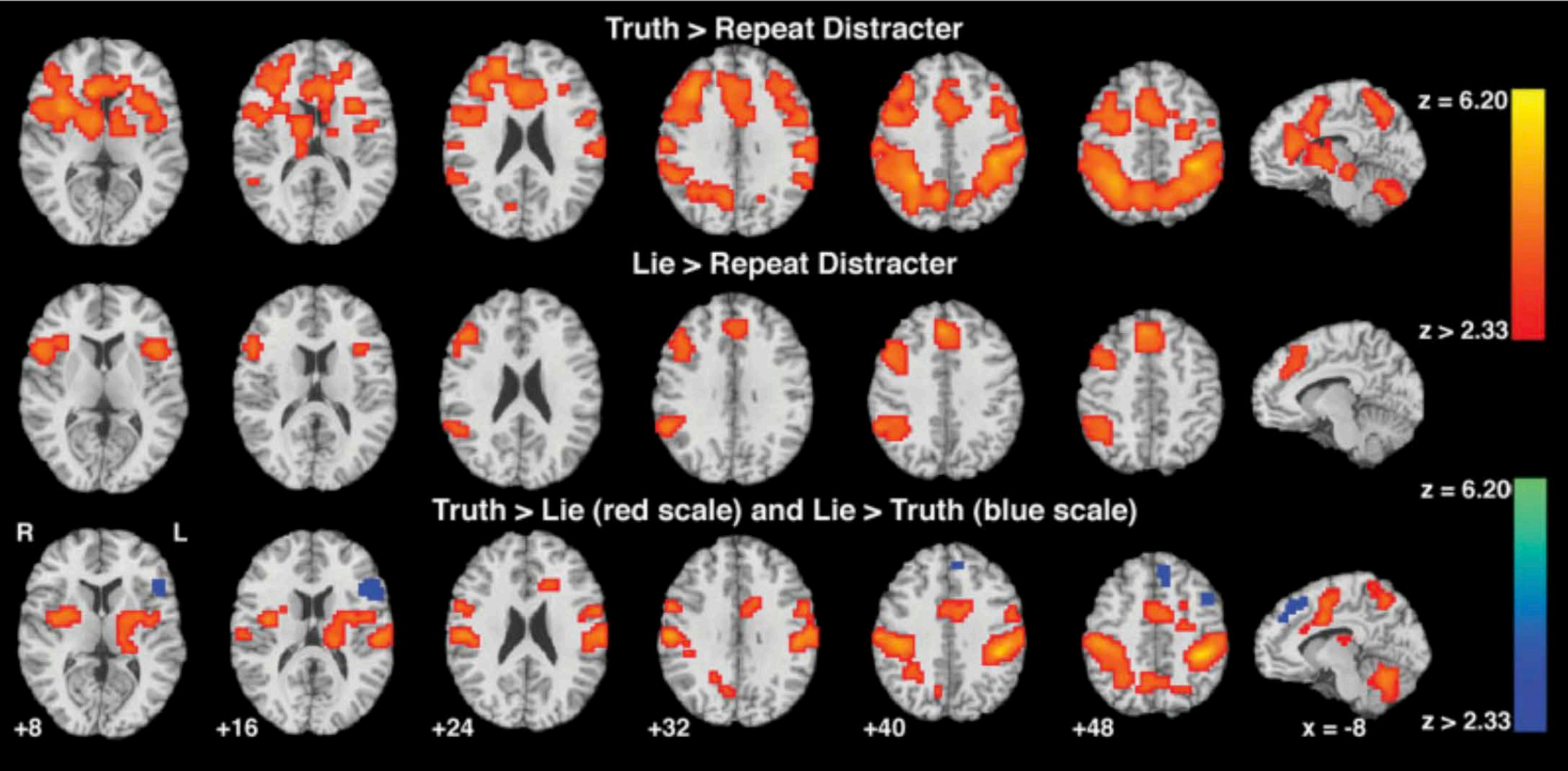
Tourette Syndrome

[Movie Unavailable]

Freezing of Gait in Parkinson's Disease

[Movie Unavailable]

What the future holds...



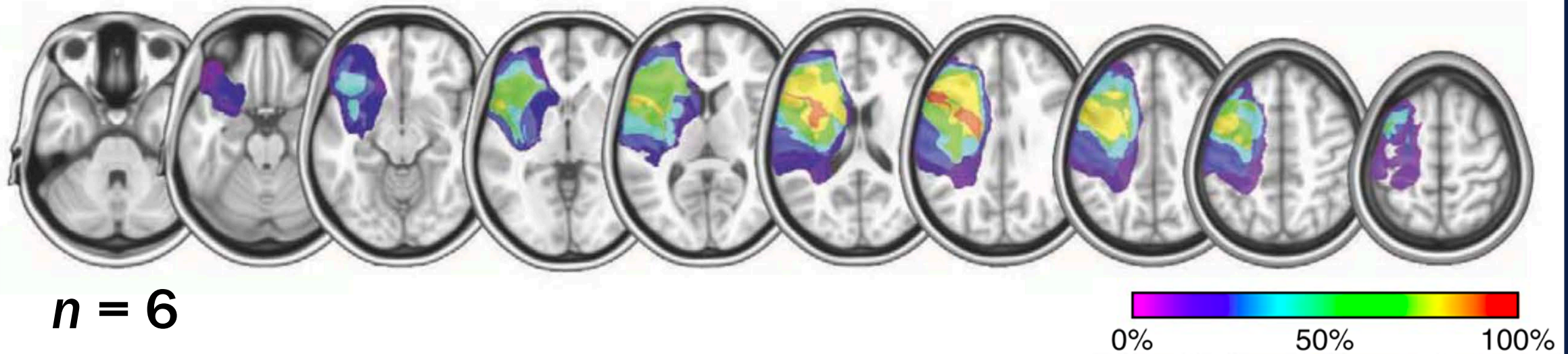
$n = 22$

♦ Human Brain Mapping 26:262–272(2005) ♦

Telling Truth From Lie in Individual Subjects With Fast Event-Related fMRI

Daniel D. Langleben,* James W. Loughhead, Warren B. Bilker,
Kosha Ruparel, Anna Rose Childress, Samantha I. Busch, and Ruben C. Gur

DLPFC



Damage to dorsolateral prefrontal cortex affects tradeoffs between honesty and self-interest

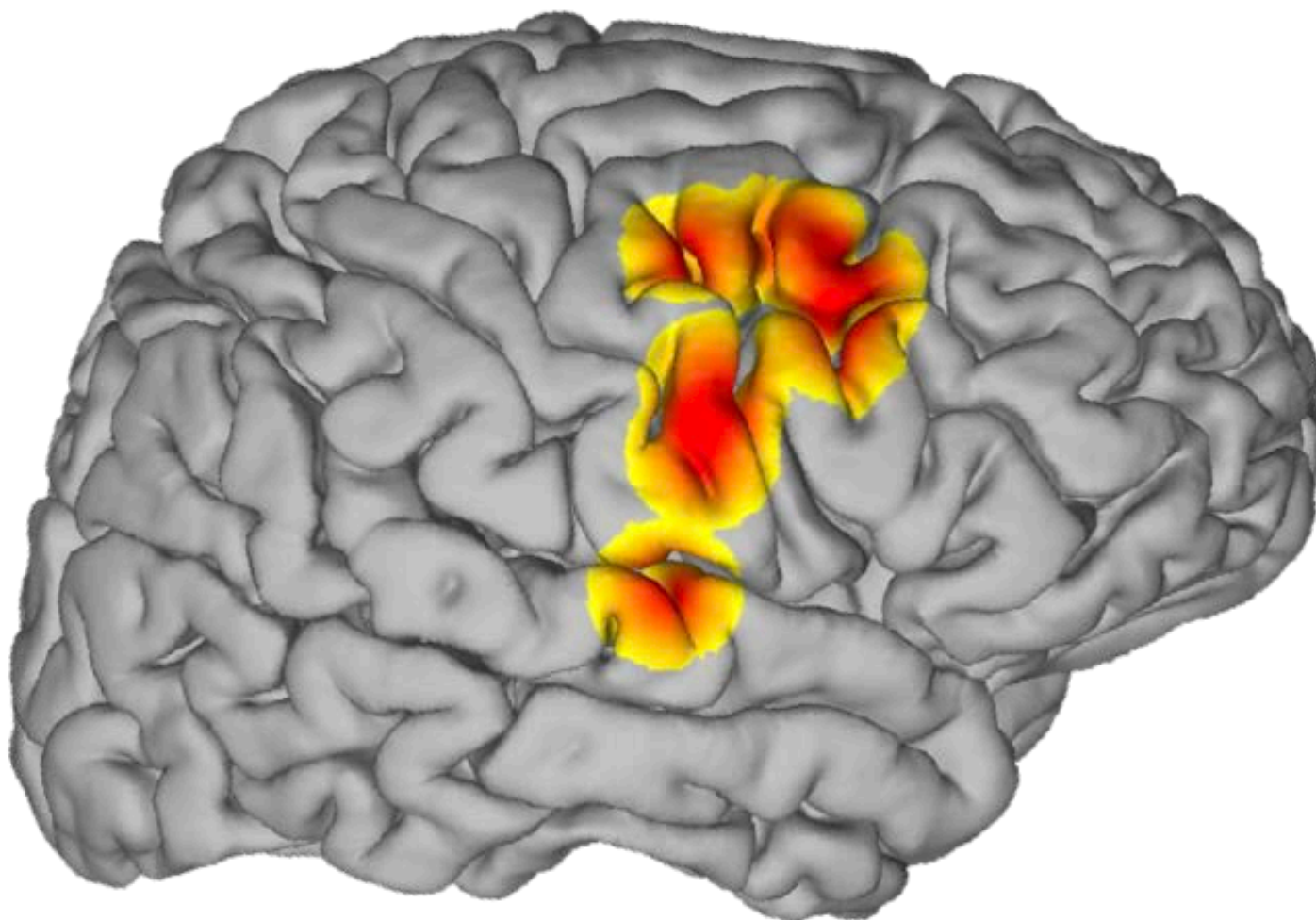
NATURE NEUROSCIENCE VOLUME 17 | NUMBER 10 | OCTOBER 2014

Lusha Zhu¹, Adrianna C Jenkins², Eric Set^{2,3}, Donatella Scabini^{4,5},
Robert T Knight^{4,5}, Pearl H Chiu^{1,6,7}, Brooks King-Casas^{1,6-8} &
Ming Hsu^{2,5}

Acknowledgments

- NIH NINDS BRAIN Initiative Grant UH3 NS095553
- NIH NINDS R01 NS096008
- Michael J. Fox Foundation for Parkinson's Research
- Medtronic PLC Investigational Use Device Donations
- UF Center for Movement Disorders: *Michael Okun & Kelly Foote*
- UF Brain Mapping Laboratory Members

Questions?



brainmappinglab.org