

Joshua A. Cain, PhD

COGNITIVE NEUROSCIENTIST & CROSS-SECTOR LEADER IN NEUROTECHNOLOGY

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SOCIAL LINKS

LINKEDIN [LinkedIn.com/in/neurojosh](https://www.linkedin.com/in/neurojosh)
INSTAGRAM [@mrdrjosh](https://www.instagram.com/mrdrjosh)
X (TWITTER) [@mrdr_josh](https://twitter.com/mrdr_josh)
BLUESKY [@dr-josh](https://bsky.app/profile/dr-josh)
SUBSTACK [@brokenmetronome](https://brokenmetronome.substack.com)

PROFESSIONAL LINKS

MY WEBSITE joshuacain.com
GOOGLE SCHOLAR tinyurl.com/jcgscholar
ORCID [0000-0001-5788-4693](https://orcid.org/0000-0001-5788-4693)
GITHUB [@josh-a-cain](https://github.com/josh-a-cain)
RESEARCHGATE [@Joshua-Cain](https://www.researchgate.net/profile/Joshua-Cain)



PROFESSIONAL SUMMARY

BACKGROUND

Neuromodulation?

What is tFUS?

Consciousness?

Disorders of Consciousness (e.g., Coma)

Cognitive neuroscientist and research operations leader with cross-sector experience spanning: basic research, clinical trials, advanced data analytics, and the neurotechnology industry. Led 10+ research programs from inception through publication, including work in *Nature*, *PLOS ONE*, *Brain Stimulation*, and *Neurocritical Care*. Pioneered transcranial focused ultrasound (tFUS/LIFU) for human neuromodulation: led 1st-ever clinical trial using tFUS (Treating Coma), conducted a significant portion of the earliest basic research on tFUS in humans, published field-enabling, open-source software, and established several tFUS labs across the globe while training many of the most prominent tFUS pioneers. Founded multiple early-stage neurotech companies and held multiple C-suite-level roles (CEO, CSO). Raised a collective \$5M+ in grants and venture funding as the project's principle investigator (PI). Has > 5yrs of PI-level experience, with full ownership of the program lifecycle: strategy, protocol development, regulatory navigation (IRB, FDA, IP), execution, statistical analysis, and dissemination. My work has been featured widely in major media outlets worldwide, including: *Front Page of the LA Times*, *Voice of America*, & *Wired*.

CORE SKILLS

MORE INFO

NEUROIMAGING (>10 YRS): (f)MRI #1 | EEG | CT | fNIRS | [Multi-Modal Imaging Expert](#) | Imaging+Stimulation | Combining Imaging & Behavioral and/or [Physiological Data](#) | Structural MRI | ASL | Graph-theory analysis | FSL | SPM | FreeSurfer | ANTs | AFNI | EEGLAB | ERPLAB | Fieldtrip

NEUROMODULATION (~10 YRS): LIFU #1 | TMS | Neuronavigation | [Neuromodulation Pioneer](#) | Among 1st-users of Focused Ultrasound Stimulation in Humans | Led 1st Clinical Use of FUS | Biophysical acoustic simulation | tES | Closed-loop control

CLINICAL RESEARCH (>10 YRS): [TBI & DOC \(e.g., Coma\)](#) #1 | Parkinson's | ADHD | Mood Disorders | [Led Seminal Clinical Trials](#) | RCT design | Protocol development | Clinical operations | GCP | IRB & FDA submission | CRO & vendor oversight | Multi-site management

DATA ANALYSIS (>10 YRS): [MATLAB](#) #1 | Python | Bash | R | ML/AI | Bayesian Stats | GLM | Mixed models | Non-parametrics | Survival & longitudinal analysis | Propensity scores | SAP authoring | Psychometrics | Meta-analysis | Time-series analysis | Classification | Clustering | Dimensionality reduction | Feature engineering | Deep learning | NLP/LLMs (scikit-learn, PyTorch, TensorFlow) | SQL | SAS | SPSS | JASP | Excel | Tableau | Power BI | Spark/Hadoop | Git | Docker | Pandas | NumPy

CROSS-SECTOR LEADERSHIP (>5 YRS): R&D Leader (20+ Programs, budgets >\$10M) | Several Senior, Cross-Sector Roles: Academia, Non-Profits, For-Profits | Startup Founder | [BCI Thought-Leader](#) | Public Speaking | Business dev. | Contract negotiation (LOI, SRA, IAA, NDA) | Grant writing

HEALTHCARE DATA SCIENCE (>10 YRS): Health Outcomes Research | Biostatistics | Real-World Data / Evidence | Turning multi-modal clinical data into decisions for research, product, & regulatory audiences | EHR/EMR (HIPAA, CDISC) | Imaging biomarkers

CODE

MRI

EEG

TFUS

EXPERIENCE

MORE INFO

Founder & CEO * [Symphony Neurotech](#)

EXECUTIVE SUMMARY

 *San Francisco, CA* * OCT 2024 – PRESENT
Founded company | Defined mission & organizational structure | Raised \$300K Round | Patented Critical IP | Led team of 4 employees, 7 advisors

Co-Founder & Chief Scientific Officer (CSO) * *Empath Inc.* *San Francisco, CA* * JUL 2024 – OCT 2024
Co-founded company | Raised ~\$500k | Led technical activities | Authored R&D, compliance, IP strategies & technical whitepapers | Filed IRB (GCP)

Chief Scientific Officer (CSO) * *International Brain Research Foundation* *Miami, FL* * JAN 2024 – SEP 2024
Built focused ultrasound lab | Developed ultrasound stimulation protocol for treating Parkinson's | Secured Funding (\$3.37M) | Managed multisite trials

Senior Research Scientist * [Institute for Advanced Consciousness Studies](#) *Santa Monica, CA* * DEC 2021 – JAN 2024
— Built neuromodulation lab | Led team of 10+ through completion of [landmark study](#) deepening mediation via [deep-brain neuromodulation](#)
— For all neuromodulation research, led: design, funding, execution, analysis, publication, & [dissemination](#).

Staff Cognitive Neuroscientist * *UCLA (Lab of Martin M. Monti)* *Los Angeles, CA* * DEC 2021 – JUL 2022
Directed clinical trials | Led data collection team | Developed protocols | Designed studies | Conducted advanced data analysis.
Led, published & publicized research on: neuromodulation, coma & consciousness | [open-source ultrasound simulation software](#) used field-wide

Contract Neuroscientist * *University of Vienna (Lab of Dr. Julia Crone)* *Vienna, Austria* * MAY 2022 – SEP 2022
Built focused ultrasound laboratory | Trained research staff | [Presented on Focused Ultrasound Methodology](#) to Psychology Department

Member of the Board * [Sputnik Brain Inc.](#) *New Delhi, India* * JAN 2020 – PRESENT
Provide ongoing strategic & technical guidance on Product design | Research direction | Scientific backing | Protocol design | Fundraising.

Psychiatric Social Worker * *Eyerly Ball Community Mental Health* *Des Moines, IA* * NOV 2016 – JUN 2017
Coordinated care for patients with severe psychiatric illness in several in-patient, group-home facilities | Led group therapy | Managed medications

EDUCATION

MORE INFO

PhD, Cognitive Neuroscience * [UCLA](#)

DISSERTATION

 *Los Angeles, CA* * SEP 2017 – JAN 2022
[Graduated 1st in class](#) | Led [1st Clinical Trial using Ultrasound Neuromodulation](#) | Advanced science of coma, consciousness, & brain stimulation

BSc, Neuroscience & Psychology * [Drake University](#) *Des Moines, IA* * SEP 2012 – MAY 2016
4.0 GPA, *Summa Cum Laude* | Recognized as the 'Top Neuroscience Undergraduate' | Researched early-life stress in rodent models for ~4 yrs

MEDIA

[Los Angeles Times](#) (Front Cover!) | [Voice of America](#) | [Cody Rall](#) | [Wired](#) | [Vaisberg](#) | [Science](#) | [Scientific American](#) | [UCLA Press](#) | [Nautilus](#) & more!

PUBLICATIONS

MORE INFO

GOOGLE SCHOLAR

* = Co-First Author

Cain, et al. [Ultrasonic thalamic stimulation in chronic disorders of consciousness](#). *Brain Stimulation*, 2021

PDF

GRAPHIC

Cain, et al. [Real-time and delayed effects of subcortical low-intensity focused ultrasound](#). *Nature (Scientific Reports)*, 2021

PDF

GRAPHIC

Cain, Luppi, Spindler, Górska, et al.* [Mechanisms underlying disorders of consciousness](#). *Neurocritical Care*, 2021

PDF

GRAPHIC

Cain, et al. [S.M.A.R.T. F.U.S.: surrogate model of attenuation and refraction in transcranial focused ultrasound](#). *PLOS ONE*, 2022

PDF

GRAPHIC

Cain, et al. [Ultrasonic deep brain neuromodulation in acute disorders of consciousness: a proof of concept](#). *Brain Sciences*, 2022

PDF

GRAPHIC

Cain, et al. [Facilitating meditation with focused ultrasound neuromodulation in experienced practitioners](#). *PsyArXiv*, 2026

PDF

GRAPHIC

Cain & Hopkins, et al.* [Transcranial ultrasound stimulation of central thalamus reduces arousal in healthy volunteers](#). 2026

PDF

GRAPHIC

Cain, et al. [Neuromotor recovery following ultrasonic thalamic stimulation in chronic disorders of consciousness](#). *medRxiv*, 2025

PDF

GRAPHIC

Monti, ..., Cain, et al. [Thalamic sonication in chronic disorders of consciousness: a mechanistic single-arm clinical trial](#). *OSF Preprints*, 2026

PDF

GRAPHIC

Ganesan, Cain ..., King. [ENIGMA-Meditation: worldwide consortium for neuroscientific investigations of meditation](#). *Bio. Psychiatry:CNNI*, 2024

PDF

GRAPHIC

Iglehart, C., ... Cain, ... Saranathan, M. [A systematic comparison of thalamus parcellation techniques](#). *Brain Structure and Function*, 2020

PDF

GRAPHIC

Bratch, ..., Cain, et al. [Working memory systems in the rat](#). *Current Biology*, 2016

PDF

GRAPHIC

GRANTS

Parkinson's Foundation (2024) – \$3,365,000 | OSF Consciousness Science (2023–24) – \$50,000 | UCLA Ursula Mandel (2020–21) – \$20,000 | UCLA Graduate Research (2018, 20) – \$20,000 each | UCLA Graduate Mentorship (2018, 19) – \$6,000 each

AWARDS

Distinguished Clinical Research Award – Save a Soldier Project (2024) | [Gengerelli Distinguished Dissertation Award](#) – UCLA (2022) | *Best Post-Doctoral Paper* – UCLA (2022) | *Student Award* – Therapeutic Ultrasound Society (2019)

TALKS

U VIENNA

 | SBMT | [Science of Consciousness \(TSC\)](#) | [Allen Institute](#) | [NANS](#) | [ISTU](#) | [FUN](#) | [School of Neurotherapy](#) | [Brain Stimulation Conference](#)

DESIGN

MORE INFO

[Photography](#) | [Videography](#) | Drone Photography | Graphic design | Data visualization | Scientific figure design | 2D design & storytelling: Figma | Canva | Framr | Adobe (Photoshop, Illustrator, InDesign) | UI/UX & web/app design | Motion graphics | 3D design & modelling: Blender | Autodesk Fusion | SolidWorks | 3D Slicer | 3D CAD | 3D printing | Multi-modal AI media generation | Image compositing | Typography | Infographics | Presentation design

CERTIFICATION

GCP | CITI Human Subjects Research | ARRT / ARMRIT (radiology) | MRSO (MR Safety Officer) | ABRET (EEG) | HIPAA (Privacy & Security) | TMS Safety