



Yale

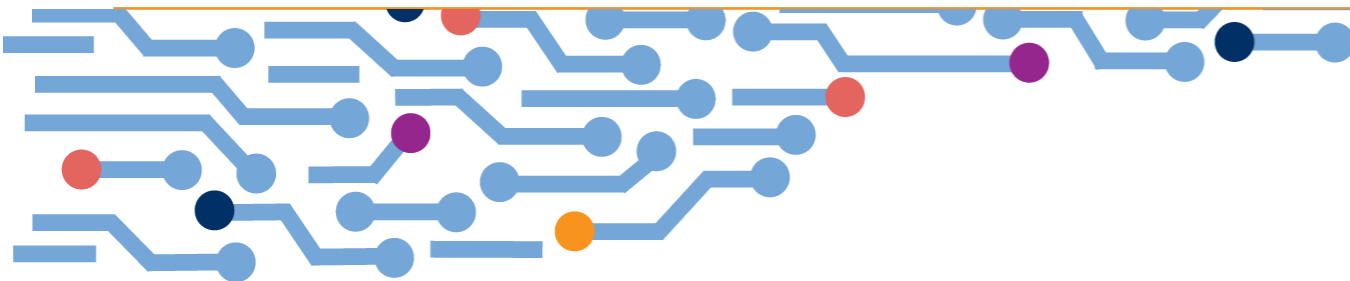
Center for Brain & Mind Health

# Annual Report

## 2025

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## Message from the Directors

Dear Colleagues,  
The Center for Brain and Mind Health, or CBMH, is three years old. Following a year-long planning process and a series of conversations with the Dean, we set out to create a new kind of Center. We aimed to cross clinical and non-clinical departments, disciplines, and areas of focus, around the theme of clinical and translational neuroscience that has the potential to directly touch patients' lives. We sought to galvanize new cross-disciplinary collaborations and projects at Yale. Three years later, CBMH has become a dynamic community of more than 230 members across 34 departments. We have seen deep engagement in our informal salon-style 'conversations' around exciting topics in neuroscience relevant to human health. We celebrate numerous new collaborations between CBMH members who might not have even known about each other's work otherwise. Our community has driven scientific discovery, leading to important publications and several 'moonshot' grants and projects that are raising the bar for collaborative, impactful science.

In this Annual Report, we reflect on another transformative year. We are continually amazed by the power of intentional collaboration to unlock scientific potential that would otherwise remain dormant within traditional academic silos. This year has been marked by extraordinary growth in both our community and our collective impact on the field of clinical and translational neuroscience.

We hired two seasoned faculty to enhance arenas of key importance to mind and brain health: Christine Cha, PhD, a global expert in the critical area of youth suicide, and Xiaosi Gu, PhD, a pioneer in computational psychiatry. These strategic additions represent our commitment to addressing the most pressing challenges in brain and mind health through the recruitment of world-class talent—new colleagues to contribute to our vision of interdisciplinary excellence.

Over the past year we have hosted several major symposia. These included our annual Pilot Award Symposium, highlighting the work of CBMH members; our annual Research Symposium, which focused on brain/machine interfaces; a joint symposium with the new Yale Biomedical Imaging Institute; and an international workshop on Long COVID. Each event was a catalyst for new connections, sparking conversations that extend beyond symposium halls into laboratories, clinics, and collaborative research spaces across our campus and the world.

The organic evolution of CBMH continues to exceed our hopes. What began as an ambitious experiment in breaking down departmental barriers has flourished into a vibrant ecosystem where neuroscientists, clinicians, engineers, philosophers, and computational experts engage in meaningful dialogue that advances our collective understanding of the human brain and mind. We have observed that when brilliant minds are given the space and support to explore ideas together, innovation naturally follows.

Yale is a unique place rich in opportunities for collaboration—both within the School of Medicine and across other schools at the University, including the Faculty of Arts and Sciences and the Schools of Engineering, Nursing, Public Health, Law, and even Music. CBMH will continue to serve as a hub for members of our community to come together in pursuit of the betterment of human brain and mind health.

With deep appreciation for your continued engagement and excitement for the discoveries ahead,

### The CBMH Directors

*Eiyemisi Damisah, MD*

*James McPartland, PhD*

*Christopher Pittenger, MD, PhD*

*Kevin Sheth, MD*

*Serena Spudich, MD*

## Mission Statement

The Yale Center for Brain and Mind Health strives to be a beacon of innovation, championing transformative clinical and translational neuroscience research for the betterment of society. We cultivate inclusivity and collaboration, uniting faculty and trainees across disciplines to passionately pursue scientific discovery. Rooted in community, we actively forge connections with the health system, academia, and the public to identify pressing needs and catalyze real-world change. We address today's urgent challenges, and envision and shape a healthier tomorrow for all.

# Membership

## ● Building community for clinical & translational neuroscience

CBMH now has 234 members—an increase of 44 this year. Our community represents 34 departments across five schools at Yale.

Our aim to advance novel and impactful research is best realized when scientific inquiry spans departments, disciplines, and levels of analysis.

Departments	
● Anesthesiology	● Lab Medicine
● Biomedical Engineering (SEAS)	● Mathematics (FAS)
● Biomedical Informatics & Data Science	● Neurology
● Biostatistics (YSPH)	● Neuroscience
● Child Study Center	● Neurosurgery
● Comparative Medicine	● School of Nursing
● Computer Science (SEAS)	● Obstetrics, Gynecology & Reproductive Sciences
● Economics (FAS)	● Pediatrics
● Electrical Engineering (SEAS)	● Philosophy
● Emergency Medicine	● Political Science (FAS)
● Environmental Health Sciences (YSPH)	● Psychiatry
● Epidemiology (YSPH)	● Psychology (FAS)
● Genetics	● Radiology & Biomedical Imaging
● Immunobiology	● School of Law (FAS)
● Internal Medicine General Internal Medicine Cardiovascular Medicine Digestive Diseases Infectious Diseases	● School of Management
	● School of Music
	● Surgery
	● Urology
	● Yale Ventures

- School of Medicine
- Other schools

# CBMH Community Achievements

## ● Member News: Celebrating the accomplishments of the CBMH members

CBMH recently surveyed members regarding their activities over the past year. Here we highlight some of the achievements that our members were most excited about.

### Recent Publications

**Amy Arnsten, PhD** "An integrated view of the relationships between amyloid, tau, and inflammatory pathophysiology in Alzheimer's disease" *Alzheimer's & Dementia*

**Hal Blumenfeld, MD, PhD** "The neural activity of auditory conscious perception" *NeuroImage*

**Salih Cayir, MD** "Relationship between neuroimaging and cognition in frontotemporal dementia: An FDG-PET and structural MRI study" *Journal of Neuroimaging*

**Christine Cha, PhD** "Testing the modifiability of episodic future thinking and episodic memory among suicidal and nonsuicidal adolescents" *Journal of Child Psychology and Psychiatry Advances*

**Alicia Che, PhD** "Psilocybin's lasting action requires pyramidal cell types and 5-HT2A receptors" *Nature*

**Phil Corlett, PhD** "Prior Expectations of Volatility Following Psychotherapy for Delusions: A Randomized Clinical Trial" *JAMA Network Open*

**Carolyn Fredericks, MD** "Whole-brain functional connectivity predicts regional tau PET in preclinical Alzheimer's disease" *Brain Communications*

**Dylan Gee, PhD** "Person-centered analyses reveal that developmental adversity at moderate levels and neural threat/safety discrimination are associated with lower anxiety in early adulthood" *Communications Psychology*

**Xiaosi Gu, PhD** "Phenotypic divergence between individuals with self-reported autistic traits and clinically ascertained autism" *Nature Mental Health*

**Ilan Harpaz-Rotem, PhD, ABPP** "Emotional state transitions in trauma-exposed individuals with and without posttraumatic stress disorder" *JAMA Network Open*

**Xiaofeng Liu, PhD** "Deep learning-based detection of depression by fusing auditory, visual and textual clues" *Journal of Affective Disorders*

**Thibault Marin, PhD** "PET mapping of receptor occupancy using joint direct parametric reconstruction" *IEEE Transactions on Biomedical Engineering*

**David Matuskey, MD** "11C-UCB-J PET imaging is consistent with lower synaptic density in autistic adults" *Molecular Psychiatry*

**David Ostry, PhD** "The human somatosensory cortex contributes to the encoding of newly learned movements" *Proceedings of the National Academy of Sciences*

**Helena Rutherford, PhD** "A Role for Fetal Movement in Shaping Maternal Neurodevelopment" *Developmental Psychobiology*

**Dustin Scheinost, PhD** "The inflammatory and genetic mechanisms underlying the cumulative effect of co-occurring pain conditions on depression" *Science Advances*

**Adithya Sivaraju, MD, MHA** "Multitask language mapping to visualize the spatial configuration of polyfunctional language cortex" *Neurology*

**Hang Zhou, PhD** "Human genetics and epigenetics of alcohol use disorder" *Journal of Clinical Investigation*

### Recent Awards and Honors

**2025 American Roentgen Ray Society (ARRS) Scholarship** - Luca Pasquini, MD, PhD, Radiology and Biomedical Imaging

**2025 Sadaoki Furui Prize Paper Award from APSIPA/IEEE SPS** - Xiaofeng Liu, PhD, Radiology and Biomedical Imaging

**Elected to the Association for American Physicians** - Lauren Sansing, MD, MS, Neurology and Kevin Sheth, MD, Neurology

**Fellow, Royal Society of Canada** - Kristen Brennan, PhD, Psychiatry

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# CBMH Community Page

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**The Hodgkin Plenary Lecture** - Amy Arnsten, PhD, Neuroscience

**Harris Professor in the Child Study Center** - Carla Stover, PhD, Child Study Center

**Leadership Academy Award, United States Association for the Study of Pain (USASP)** - Joao P. De Aquino, MD, Psychiatry

**National Academy of Sciences, Kavli Fellow** - Dustin Scheinost, PhD, Radiology and Biomedical Imaging

**Anne G. Osborn ASNR International Outreach Professor Award** - Claudia F. E. Kirsch, FACR, MD, Radiology and Biomedical Imaging

**Presidential Early Career Award for Scientists and Engineers (PECASE)** - Xiaosi Gu, PhD, Psychiatry

**Society for a Science of Clinical Psychology (SSCP) Mentorship Impact Award** - Dylan Gee, PhD, Psychology

## ● Member feedback on how CBMH can support the community

Our survey also requested suggestions of how CBMH can best foster high-impact clinical and translational neuroscience among our members. The responses reveal a research community enthusiastic to push boundaries and explore new domains. Members called for diversified funding ecosystems that extend beyond traditional federal sources—additional pilot grants that spark new projects, postdoctoral fellowships that nurture emerging talent, and philanthropic partnerships that unlock research possibilities previously constrained by conventional funding limitations. Researchers seek more dynamic touchpoints with CBMH leadership and networking experiences that foster unexpected partnerships. Members envision cross-pollination between neuroscience and fields like artificial intelligence and climate science, recognizing that today's pressing questions about brain health may find answers at these disciplinary intersections. Faculty expressed eagerness to translate their discoveries into accessible narratives through op-eds and community outreach. Members also emphasized enthusiasm for further enhancements to CBMH's mentorship culture through listening sessions that create space for authentic dialogue and structured support that helps trainees navigate their careers and scientific growth.



# Looking Ahead

With several years of successful CBMH initiatives behind us, we have established CBMH traditions that bring together our vibrant community, advancing our mission to connect the brain and mind sciences in ways that enhance patient care. In the coming year, we will celebrate and expand these traditions with renewed energy.

## ● Annual Research Symposium

This symposium, which showcases the remarkable research and clinical achievements of CBMH members alongside visionary speakers from across the world, has become one of our most anticipated gatherings. Past symposia explored topics such as the intersection of neuroscience interventions and self-identity and the transformative potential of personalized medicine for conditions affecting the mind and brain across the lifespan. These events create fertile ground for exchange among scientists and clinicians, catalyzing new ideas and collaborations. We look forward to announcing the theme and speakers for the 2026 Research Symposium soon. This event promises, once again, to highlight field-wide progress and help define new directions for Yale investigators.

## ● Building a Thriving Community

CBMH continues to serve as a nexus for Yale's interdisciplinary, interdepartmental community of neuroscience researchers. We have seen firsthand that when researchers and clinicians who might otherwise not meet are brought together, innovation arises. Some of our most impactful collaborations have grown organically from shared curiosity and conversation. With this in mind, the coming year will emphasize events that foster these informal connections from social gatherings, with food, drinks, and inspiring dialogue, to structured showcases that make it easy to discover what colleagues across

disciplines are working on. Expect more inspiration, collaboration, and moments of serendipity!

## ● What's New in the Year Ahead

In addition to continuing our signature events, we are launching several new initiatives:

- Expanding our faculty footprint: We are conducting a search focused on the application of artificial intelligence to improve brain and mind health. This effort aligns with Yale's university-wide investment in data science and emerging technologies. The faculty we recruit will benefit from and contribute to this rapidly evolving domain.
- Celebrating CBMH-supported discovery: As initial rounds of CBMH Pilot Grants conclude, we have inaugurated CBMH Pilot Showcases, where awardees will present their completed work. Given the caliber of the awardees and the innovative projects they proposed, these presentations will demonstrate the power of seed funding in driving discovery.
- Forging new partnerships: CBMH continues to deepen collaborations with the Yale Biomedical Imaging Institute and the Wu Tsai Institute, as a model of connectedness across university programs. This year, we are establishing a new partnership with the Office of Team Science, led by Anna Estapé, PhD. Together, we aim to turn emerging collaborations into sustained, high-impact projects and centers, expanding the reach and impact of the CBMH community.

As we look forward, we are inspired by the energy, creativity, and commitment of our members. The Center for Brain & Mind Health is more than a hub; it is a dynamic network of ideas and people working together to understand and protect the human mind. We invite you to join us in shaping what comes next.

# Highlights of the Year 2024-2025

It has been another highly successful year for CBMH. We continue in our mission of building a robust, collaborative, cross-disciplinary community, supporting innovative science, and inspiring discoveries that have potential to make a real difference in patients' lives. We have recruited our second CBMH core faculty member, Xiaosi Gu, an expert in computational neuroscience. Our third round of CBMH Pilot Awards is again supporting innovative cross-disciplinary research that is moving us towards new therapeutics. Our social events and symposia are fostering collaboration and connection across the campus.

## ● 2025 Research Symposium

**The 2025 Research Symposium**, themed 'Rewiring Reality: How Brain Research is Reshaping our Understanding of Self', was a unique and exciting event. We hosted Helen Mayberg, MD, a neurologist from Icahn School of Medicine at Mount Sinai who has pioneered the use of deep brain stimulation (DBS) for the treatment of various brain and mind conditions, most prominently major depressive disorder. She described decades of work developing DBS to treat the most refractory cases of depression and using the unique window that it gives us on circuit pathophysiology to develop new insights into normal and disrupted brain function. She was joined by Yale professors Abhishek Bhattacharjee, PhD, from the Department of Computer Science, and L.A. Paul, PhD, from the Department of Philosophy. Dr. Bhattacharjee shared his work designing cutting-edge hardware for the monitoring of brain function, balancing challenges of high information throughput and energy efficiency to enable new levels of resolution and new therapeutic strategies. Dr. Paul discussed how interventions that fundamentally alter brain function can radically change our sense of who we are, and how this potential for sharp discontinuities in self-identity raises new and challenging clinical and ethical questions. The discussion was inspiring – this intellectual sweep, bringing together innovators in treatment, technology, and philosophy, encapsulates

what CBMH seeks to fuel and enrich at Yale.

## ● Collaborative Workshops

CBMH also hosted a number of symposia with new partners, here at Yale and across the world. In May, CBMH Director Serena Spudich, MD, together with Akiko Iwasaki, PhD, from the Center for Infection and Immunity, led the first **International Long COVID Pathogenesis Workshop**, bringing together leaders from around the globe to discuss current understanding and open questions regarding the mechanisms underlying long COVID. It was striking how many different theories and perspectives there are in this space, and how much commitment to

The poster features the Yale logo and 'Center for Brain & Mind Health' at the top. The title 'Rewiring Reality: How Brain Research is Reshaping Our Understanding of Self' is prominently displayed. Below the title, it lists the date 'FEBRUARY 12, 2025' and time '3:30 P.M. - 5:30 P.M.' with a note about a poster session and refreshments. The poster lists three speakers: Helen S. Mayberg, MD (Director, Noh Family Center for Advanced Clinical Therapeutics), Abhishek Bhattacharjee, PhD (A. Barlett Glanville Professor of Computer Science at Yale University), and L.A. Paul, PhD (Millstone Family Professor of Philosophy at Yale University). Each speaker has a small circular portrait and a brief description of their work. The bottom of the poster provides the location: '100 COLLEGE STREET, 11<sup>TH</sup> FLOOR, NEW HAVEN, CT 06510'.

developing a shared understanding of this challenge the workshop was able to harness. A follow-up white paper, currently in development, will constitute an important roadmap for ongoing research to bring relief to the millions suffering from this enigmatic condition. In June we jointly hosted a symposium with the new **Yale Biomedical Imaging Institute**, focusing on bringing new technologies together to address pressing clinical problems. A parade of CBMH and YBII members shared examples of paradigm-shifting work. The day rounded out with the random assignment of participants to small groups tasked with generation of new ideas that could leverage YBII resources and expertise. After a 'report back' of these ideas to the entire group, a well-attended reception and poster session provided a forum for many investigators and trainees to share their work with the CBMH and YBII communities.

## ● CBMH Conversations

Finally, we continue our monthly **CBMH Conversations** series, an opportunity to learn from one another and

incubate new ideas and new collaborations. These salon-like sessions reveal the inquisitive nature of our CBMH scientific community; many experts join these meetings and informally share ideas and talk about their ongoing work, and many of us join to learn about topics and methods about which we know very little. Topics over the past year included GLP-1, neurovascular disease and cognition, the glymphatic system, and sleep.

This has been a challenging year for many in our community, especially those early in their careers, as we navigate a shifting and uncertain funding landscape. We devoted our CBMH Conversations in March and April to gathering as a community to discuss the rapidly changing environment and how it is affecting all of us, and to share resources and support. These sessions were well-attended and valuable.

We thank our members and supporters for their partnership. We look forward to a productive year of continued growth as we move into 2026!



# A Conversation with CBMH Collaborators

Both are leaders in neuroscience at Yale University, combining deep expertise in psychology, neuroimaging, and clinical research. Dr. Steele earned his PhD in Cognitive and Biological Psychology at the University of Minnesota and completed postdoctoral training at the Mind Research Network and the National Institute on Drug Abuse, focusing on neuroimaging and translational neuroscience. He joined Yale's Department of Psychiatry in 2020 as an Assistant Professor. Dr. Tseng received her PhD in Developmental Psychology from the University of Minnesota and trained at the National Institute of Mental Health, where she studied emotion and development. She joined Yale's Child Study Center in 2019 as a tenure-track Assistant Professor. Together, they bring complementary perspectives on brain and behavioral development, bridging fundamental research with clinical applications.



*Drs. Wan-Ling Tseng and Vaughn Steele*

## What are you working on together?

We are working on a pilot project together that is funded by CBMH. The idea is to see whether transcranial magnetic stimulation (rTMS) – a non-invasive brain stimulation technique – might help treat irritability. To do this we have young adults with high levels of irritability play a computer game that's designed to frustrate them (unbeknownst to them) while we collect functional magnetic resonance imaging (fMRI) and behavioral data of frustration responses. Next, we administer either active or sham session of rTMS, and then collect fMRI and behavioral data again to see if rTMS reduces frustration responses in the brain and behavior. It's a fascinating way to combine neuroscience, behavior, and innovative treatment approaches to better understand irritability and its potential therapies

## How did you come to be collaborators?

Although we overlapped at the University of Minnesota during our PhDs and during our post-docs at NIH, we did not meet until we both started our faculty positions at Yale. Our first meeting was at a dinner organized by a Director of CBMH. That dinner turned into further discussions that eventually developed into our interdisciplinary collaboration. Vaughn is an addiction neuroscientist and cognitive psychologist, and brings expertise in rTMS, EEG, and fMRI. Wan-Ling is a child psychologist and developmental affective neuroscientist, and brings expertise in fMRI, frustrative non-reward, irritability, mood/anxiety disorders, and developmental psychopathology. Our backgrounds complement each other, and it is exciting to see our skills come together on this project.

## What do you see as the benefit of this type of team science approach?

We believe that a team science approach sparks innovation and helps us approach nuanced issues, like understanding interrelations between the brain and mind. No single researcher has all the expertise needed to solve complex problems. By working together, we can combine our strengths and address a problem from different angles using innovative ap-

proaches, which is something we could not do on our own. In the long run, this kind of collaboration can really move the field forward and lead to more impactful discoveries to prevent and treat psychiatric and behavioral disorders.

## How has CBMH supported your work, as individuals and as a team?

The support from the CBMH pilot grant has allowed us to explore whether rTMS holds potential as a treatment for irritability; this has never been done before, and it has been something we've hoped to investigate since we met. The CBMH grant gives us the time and resources to collect data, which we're now using as pilot data for an NIH R01 proposal (currently under review) to expand this work.

## What are your long-term objectives for this line of research? How do you envision the work changing the way we care for patients?

Our long-term goal for this line of work is to refine rTMS and show that it can really help in treating irritability. We are starting this work in young adults but hope to eventually apply this work to adolescents. Irritability shows up frequently in both child and adult psychiatry, yet treatments backed by strong evidence haven't been established. If we can demonstrate that rTMS effectively reduces irritability and frustration responses, it can be the first brain-based treatment for treating irritability. This could change many lives for the better.

# CBMH Pilot Award Symposium

Our 2025 CBMH Pilot Award Symposium featured the eight applicant teams selected as finalists for the CBMH Pilot Award Program. The application process emphasized interdisciplinary collaboration, mandating that proposals featured at least two Co-Principal Investigators from different departments or disciplines, proposed novel initiatives, and demonstrated potential for near-term impact on patient or community health. We received 38 applications in response to this request, reflecting extensive disciplinary and departmental range. These applications were rigorously reviewed by a committee of 37 CBMH members led by Chairs Wan-Ling Tseng, PhD, and Adam de Havenon, MD. At the symposium, held in May, the highest rated applicants presented their ideas to the CBMH community. The award-winning projects represent some of the most exciting and innovative clinical and translational neuroscience at Yale.



*Drs. Wan-Ling Tseng, Christopher Pittenger, and Adam de Havenon*

CBMH leadership and membership are grateful for the support offered by Yale School of Medicine and Yale University to realize these transformative early-stage cross-disciplinary research projects in brain and mind health.

## 2025 CBMH Pilot Awardees



### Leveraging Whole-Brain Networks to Characterize Preclinical White Matter Injury

**Team:** Cyprien Rivier, MD, MSc, and Elisenda Bueicheku, PhD

Age-related white matter damage accumulates silently, long before clinical outcomes like stroke and dementia manifest. Existing diagnostic tools are frequently insensitive during the earliest stages, when interventions would be most effective. This project will apply whole-brain connectivity metrics to diffusion MRI data from 67,000 individuals to characterize these preclinical white matter changes. Shifting from the current lesion-centric approach, our network-based method will capture distributed, whole-brain changes. The goal is to validate whole-brain connectivity as a timelier and more accurate predictor of cognitive decline, stroke, and dementia. Such biomarkers could enable earlier interventions and accelerate clinical trials for prevention strategies.



### Manipulating Charge Interactions Between Bacterial Type-IV pili and Host-Cells to Treat Paenibacillus Brain Infections

**Team:** Nikhil Malvankar, PhD, Steven Schiff, MD, PhD, Sibel Ebru Yalcin, PhD, and Marwan Osman, PhD, DABMM, MPH

Antimicrobial resistance is a growing global health crisis, highlighting the urgent need for innovative therapeutic alternatives that target novel bacterial processes. Paenibacillus is a multidrug-resistant neurotropic pathogen prevalent in Africa, and increasingly in the US. It causes highly lethal and destructive brain infections by attaching to brain cells via hair-like appendages called Type-4 pili (T4P). We will characterize the electrical and mechanical properties of T4P in single cells and biofilms to test our hypothesis that Paenibacillus transfers electrons via T4P for attachment and growth. Our team of a physician, microbiologists, and biophysicists aims to precisely target the T4P's molecular structure to design new drug compounds that block electron transfer and prevent bacterial attachment and growth. Such structure-based drug development could lead to a global improvement in the treatment of brain infections.



### Neurobehavioral Dyadic Synchrony in Parent-Youth Facial Interactions: A Multi-Modal Suicide Prevention Target

**Team:** Christine Cha, PhD, Hilary Blumberg, MD, and Joy Hirsch, PhD

Suicide is a leading cause of death in youths. It is unfortunately common for a loved one to wish they saw signals to help the youth. Some interpersonal interactions could increase risk, while even some brief interactions could save lives. We will use a novel approach to study brain and behavioral synchrony between teens with varying degrees of suicidality and their parents during live face-to-face interactions. The functional near infrared spectroscopy brain scanning method is non-invasive, using only light to acquire data during parent-teen interactions. Behavioral measures will include nonverbal responses such as changes in facial expression. A smartphone app will show how the youths are feeling in the weeks after study. Findings could provide transformational discoveries and scalable methods for early suicide detection and prevention.



### Targeting Emotion Circuit Maturation as a Neurodevelopmental Mechanism to Reduce Post-Traumatic Psychiatric Symptoms in Youth

**Team:** Dylan Gee, PhD, and Carla Stover, PhD

Exposure to childhood trauma alters the development of emotion-related brain circuits and increases risk for psychiatric disorders. Post-traumatic treatment in the acute phase following exposure has shown success in alleviating symptoms and disrupting the onset of post-traumatic stress disorder (PTSD); however, the neurodevelopmental mechanisms supporting treatment efficacy remain unknown. We will use machine learning models to determine how trauma exposure and PTSD symptoms relate to atypical circuit maturation in a large, longitudinal youth cohort. We will then apply these models to test whether a brief evidence-based intervention could change amygdala-PFC circuit maturation and target PTSD symptoms in a pilot sample of 20 youth aged 9-16 following acute trauma exposure. This work is poised to inform personalized therapeutic approaches for trauma-exposed youth by focusing on individual patterns of brain development.

## CBMH Faculty Hire

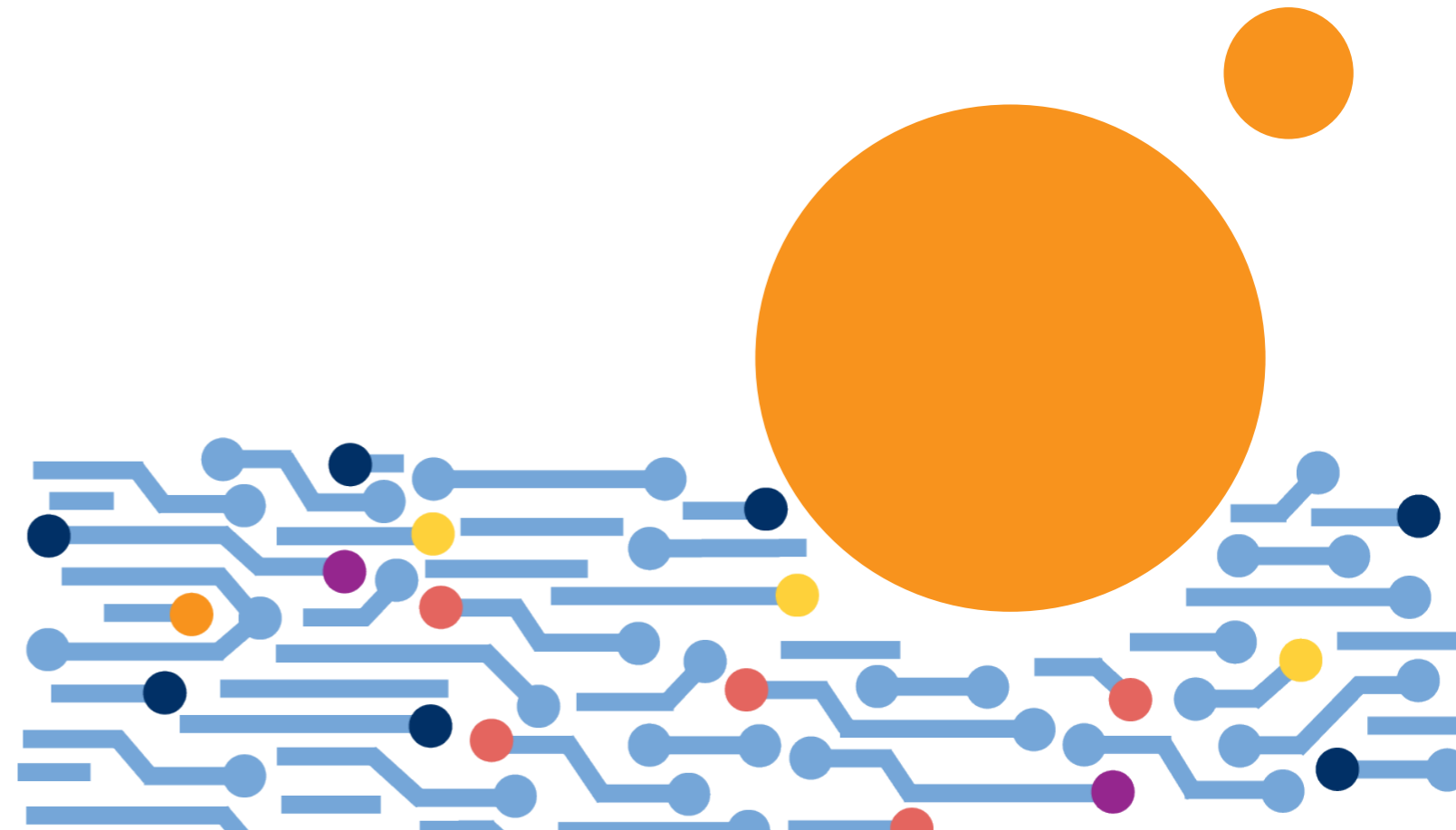


Xiaosi Gu, PhD, joined the Yale community this summer as our second CBMH core faculty hire. Dr. Gu is Professor of Psychiatry and Biomedical Informatics & Data Science in the Center for Brain and Mind Health. Trained at Icahn School of Medicine at Mount Sinai and University College London, she has built an internationally recognized program in computational psychiatry. She investigates how decision-making, interoception, and social behavior are represented and computed in the brain—and how these processes are disrupted in mental illness and neurodevelopmental conditions. A recipient of the Presidential Early Career Award for Scientists and Engineers (PECASE), she has been continuously funded by NIH and private foundations since 2015.

Dr. Gu's research integrates computational modeling, neuroimaging, and intracranial recording. Her early work introduced the framework of interoceptive inference, showing how the insular cortex integrates bodily signals to generate feelings. She later proposed a computational model of drug craving as aberrant interoceptive inference, reframing how addiction is conceptualized. Her work has also advanced the neuroscience of social behavior, revealing the computations that support empathy, norm adaptation, and strategic social planning and coordination. Using novel intracranial methods, she has shown distinct computational roles for dopamine and serotonin in social decision-making—findings with implications for conditions such as depression, substance use disorder, and autism.

Through these contributions, Dr. Gu has helped establish computational psychiatry as a bridge between neuroscience and clinical care. She serves as Editor-in-Chief of the journal *Computational Psychiatry*, Co-Director of the Society for Computational Psychiatry, and reviewer for leading journals and funding agencies. Beyond academia, she is a strong advocate for mental health, sharing her work in public forums including a 2018 TEDx talk.

Here at Yale, Dr. Gu is actively forging new collaborations with members of the CBMH community, in areas such as behavioral metrics of transdiagnostic mental health and human intracranial electrophysiology. She is also co-leading the organizing committee of an international conference on computational psychiatry, which will be held here at Yale in the summer of 2026. This will foster collaborations between CBMH researchers and the global research community. Additionally, she plans to establish a computational psychiatry training program at Yale in concert with other CBMH members. Through these initiatives, Dr. Gu will contribute to the mission and vision of CBMH, promoting collaborative research, community building, and education.



<https://medicine.yale.edu/brain-mind-health/>

[cbmh@yale.edu](mailto:cbmh@yale.edu)

**For those considering donations to CBMH, please contact Zsuzsanna Somogyi,  
Senior Director of Development, Yale School of Medicine.**