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Bobby Tromm

Curriculum vitae

Education

2021–2023 **MSc Cognitive and Clinical Neuroscience**, *Maastricht University*, *8.45/10*
Supervised by: Dr. Jan Ramaekers, Dr. Morten Kringelbach

2016–2020 **BS Neuroscience**, *Brandeis University*, *Cum laude*
Supervised by: Dr. Eve Marder
- SAT Score: 2040
- ACT Score: 34

Selected honors and awards

2023-2024 **Usona Institute Scholarship**, *Usona Institute (twice awarded)*

2024 **Polaris Fellowship**, *Entrepreneur First*

2020 **Justice Brandeis Scholarship**, *Brandeis University*

2016 **AHEPA Scholarship**, *American Hellenic Educational Progressive Association*

2016 **Academic and Adversity Scholarship**, *Southern Alumni Scholarship Foundation*

Skills

Neuroscience Computational and cognitive neuroscience, fMRI, M/EEG, neuromodulation, psychopharmacology

Programming MATLAB, Python, Java, C++, R, Bash, neuroimaging frameworks (SPM/FSL/FreeSurfer)

Computational Whole-brain modeling, information theory, graph theory, statistical analysis, machine learning, deep learning, time-frequency analysis, signal processing, data visualization

Research Scientific writing, data analysis, literature search and review, project management, public speaking, interdisciplinary collaboration

Experience

Research

2024–Present **Research Engineer**, *Karalis Lab*, Paris Brain Institute, Institut du Cerveau
Characterizing neuromodulatory regimes in brain dynamics

2023 **Visiting Researcher**, *Centre for Eudaimonia and Human Flourishing*, Department of Psychiatry, University of Oxford
Thesis: Changes in brain hierarchy following acute and chronic use of psychoactive substances
- **Key finding:** Psychedelics induce widespread reconfiguration of the brain's functional hierarchy.
- Analyzed changes in functional hierarchy using whole-brain modeling and information decomposition.

2022–2023 **Research Assistant**, *Ramaekers Lab*, Maastricht University
fMRI preprocessing pipeline development

2019–2020 **Undergraduate Researcher**, *Marder Lab*, Brandeis University
Thesis: Variability in homeostatic tuning rules produces diverse correlations in ion channels
- **Key finding:** Model neurons express variability in mRNA- and ion channel-level maximal conductance across neurons of the same cell type through differential regulation of ion channel associated mRNA transcription rates.
- Implemented and analyzed 2 homeostatic control mechanisms in C++ for use with Xolotl, improving performance by 3x versus the gold-standard simulator, NEURON.

2018–2019 **Undergraduate Researcher**, *Miller Lab*, Brandeis University
Neuronal homeostasis, dynamical systems theory

Professional

2020–2022 **Founder and CTO**, *Psygaia*
Educational programs for future psychedelic-assisted psychotherapists
- Led the company through Tabula Rasa Ventures incubator

2019–2021 **Coordinator**, *Intercollegiate Psychedelics Network*
Research & Professional Development
- Organized first iteration of PsychedelX, a virtual conference and talk competition.

2020–2021 **Consultant**, *Novamind*
Statistical analysis of studies on emotion-focused ketamine-assisted psychotherapy for treatment of eating disorders

Conferences and Speaking Opportunities

2024 **Symposium: Mathematical and philosophical models of consciousness**, *Ritsumeikan University*, Poster
Changes in functional brain organization under ayahuasca and DMT

2024 **ASSC 27**, *University of Tokyo*, Poster, Student Committee Organiser
Brain hierarchy under psychoactive substances

2023 **ALPS 2023**, *Geneva*, Poster
'The anarchically organised brain: changes in functional hierarchy in altered states'

2020 **PsychedelX**, *Online*, Panel moderator
Industry leaders on working in the psychedelic industry

2020 **IPS 2020**, *Harvard University*, Organiser

2019 **SciFest IX**, *Brandeis University*, Poster
Dual homeostatic mechanisms can reproduce diverse ion channel correlations

Volunteering and teaching experience

2024–Present **"Neurons Study Neurons"**, *Facilitator*
Leading a virtual lecture series and reading group for neuroscience

2024–Present **Association for the Scientific Study of Consciousness**, *Student committee*

2016–2018 **Students for Sensible Drug Policy**, *Chapter founder & president*

Workshops and Certifications

2024 **Neurohackademy**, *University of Washington*

2024 **Qualia Structure Summer School**, *Kyoto*

2024 **Mediterranean Society for the Study of Consciousness Winter School**, *Catalunya*

2020 **Neuromatch Computational Neuroscience**, *Online*

Publications

[1] C. R. Coleman, K. Shinozuka, R. Tromm, O. Dipasquale, M. Kaelen, L. Roseman, S. Muthukumaraswamy, D. J. Nutt, L. Barnett, and R. Carhart-Harris. The Role of the Dorsolateral Prefrontal Cortex in Ego Dissolution and Emotional Arousal During the Psychedelic State. *bioRxiv*, 2024.