

CURRICULUM VITAE

Thorsten Kahnt, PhD
Investigator
Chief, Learning and Decision-Making Unit
Cellular and Neurocomputational Systems Branch
NIH/NIDA Intramural Research Program
251 Bayview Blvd
Suite 200, RM 06A711
Baltimore, MD 21224

CURRENT POSITIONS

- Investigator, Chief of the Learning and Decision-Making Unit, NIH/NIDA Intramural Research Program, Baltimore, MD, since 2022

PAST POSITIONS

- Postdoctoral Fellow (adviser: Dr. Philippe N. Tobler), Laboratory for Social and Neural Systems Research, Department of Economics, University of Zurich, 2011-2014
- Assistant Professor (tenure-track), Department of Neurology, Department of Psychiatry and Behavioral Sciences (secondary), Northwestern University Feinberg School of Medicine, Chicago, IL, 2014-2021
- Associate Professor (tenured), Department of Neurology, Department of Psychiatry and Behavioral Sciences (secondary), Northwestern University Feinberg School of Medicine, Chicago, IL, 2021-2022

EDUCATION

- BA/MA Psychology (Dipl.-Psych; thesis adviser: Dr. Andreas Heinz), Free University Berlin, 2002-2007
- PhD (Dr. rer. nat., *summa cum laude*, adviser: Dr. John-Dylan Haynes), Berlin School of Mind and Brain, Humboldt University of Berlin, 2007-2011

HONORS AND AWARDS

- Undergraduate Student Scholarship, *German Academic Scholarship Foundation*, 2004-2007
- Ph.D. Scholarship, *Berlin School of Mind and Brain*, 2007-2010
- Ph.D. Award, *Berlin Scientific Society*, 2011
- Graduate Students Present Award, *Cognitive Neuroscience Society*, 2011
- Postdoctoral Scholarship, *Berlin School of Mind and Brain*, 2011
- Polak Postdoctoral Award, *Association for Chemoreception Sciences*, 2014
- Outstanding Reviewer Award, *The Journal of Neuroscience*, 2018
- Polak Young Investigator Award, *Association for Chemoreception Sciences*, 2018
- Distinguished Teaching Award, Northwestern University Interdepartmental Neuroscience Program, 2018
- Outstanding Teacher Pin for Commitment and Excellence in Teaching, Northwestern University Feinberg School of Medicine, 2019

- Outstanding Teacher Pin for Commitment and Excellence in Teaching, Northwestern University Feinberg School of Medicine, 2020
- AChemS Young Investigator Award, *Association for Chemoreception Sciences*, 2022
- NIDA Director's Innovator Award, 2023
- NIDA Director's Report on Hot Science Meeting presentation, 2024

RESEARCH SUPPORT

Ongoing Support

My lab is funded by the NIDA Intramural Research Program (ZIA DA000642).

Ongoing Support as a Mentor

- NIH/NIMH K23 MH129607 (PI Letkiewicz), *Clarifying the Role of Psychomotor Retardation in Reward-Based Reinforcement Learning Deficits in MDD: A Computational and fMRI Study*, role: co-mentor, 12/15/2022-11/30/2027
- NIH/NIDA K99 DA053633 (PI Hart), *Probing the mechanisms and circuits underlying orbitofrontal signaling*, role: co-mentor, 08/1/2023 – 07/31/2025
- NIDA Intramural Research Program Scientific Director's Fellowship for Diversity in Research (SDFDR) (Margot Tirole, IRTA postdoc), role: co-mentor, 2023-2024
- NIDA Intramural Research Program Scientific Director's Fellowship for Diversity in Research (SDFDR) (James Atwell, IRTA postbac), role: co-mentor, 2023-2024
- NIDA Intramural Research Program Scientific Director's Fellowship for Diversity in Research (SDFDR) (Taaseen Khan, IRTA postbac), role: mentor, 2024
- Center on Compulsive Behaviors (CCB) Fellowship (Phil Witkowski, IRTA postdoc), role: mentor, 2024
- Center on Compulsive Behaviors (CCB) Fellowship (Qingfang Liu, Research Fellow), role: mentor, 2024
- Center on Compulsive Behaviors (CCB) Fellowship (Avinash Vaidya, Research Fellow), role: mentor, 2024
- NIDA Intramural Research Program Scientific Director's Fellowship for Diversity in Research (SDFDR) (Carter Sale, IRTA postbac), role: mentor, 2024

Completed Support

- Northwestern University Clinical and Translational Sciences Institute Pilot Grant (PI Kahnt), *Neural pathways underlying sleep-dependent craving of high-calorie foods*, 07/01/2016 – 01/31/2017
- NIH R03 DA040668 (PI Kahnt), *Neural mechanisms of context-dependent stimulus generalization in humans*, 09/15/2016 – 08/31/2017
- NIH Contract HHSN271201700289P (PI Kahnt), *Extract neurobiological correlates of key aspects of behavior in real-time*, 05/01/2017 – 04/30/2018
- NIH R01 DC010014 (PI Gottfried), *Perceptual Coding and Modulation of Odor Objects in the Human Brain*, role: subcontract PI, 07/01/2017 – 04/30/2019
- NUCATS Voucher program (PI Kahnt), *Hormonal contributions to sleep-dependent enhancement in the neural processing of food odors*, 09/01/2017 – 01/31/2018
- NIH Contract HHSN271201800190P (PI Kahnt), *Extract neurobiological correlates of key aspects of behavior in real-time*, 03/20/2018 – 03/19/2019
- NIH Contract HHSN271201800279P (PI Kahnt), *Extract neurobiological correlates of key aspects of behavior in real-time*, 04/27/2018 – 04/26/2019
- NIH Contract N01DA-19-9916 (PI Kahnt), *Examining neural correlates of stimulus-stimulus associations using fMRI and MVPA*, 12/01/2018 – 11/30/2019

- Northwestern PDMD Advisory Council (PI Kahnt), *Toward an Olfactory Imaging Biomarker for Early-Stage Parkinson's Disease*, 01/01/2019 – 12/31/2019
- P30 AG013854 Northwestern Alzheimer's Disease Center Pilot Grant (PI Kahnt), *Imaging Degeneration of the Lateral Olfactory Tract in Alzheimer's Disease*, 07/01/2020 – 06/30/2021
- NIH 1 R21 DK118503 (PI Kahnt), *Olfactory contributions to sleep-dependent food craving and calorie intake*, 04/01/2019 – 12/31/2020 (NCE through 12/31/2021)
- NIH R01 DC015426 (PI Kahnt), *Principles of olfactory reward processing in the human brain*, 09/01/2016 – 08/31/2021
- Stanley Manne Children's Research Institute Visionary Award (PI Mithal), *Nasal Microbiome-Olfactory Axis and Neurobehavior: A Pilot Study Using Infant Functional Olfactory Imaging*, role: co-investigator, 01/01/2020 – 04/30/2022
- NIH R01 DC015426-S1 Alzheimer's-focused administrative supplement (PI Kahnt), *Principles of olfactory reward processing in the human brain*, 09/01/2020 – 08/31/2022
- NIH R01 AR072567 (PI Apkarian), *Brain Pathophysiology of Osteoarthritis Pain*, role: co-investigator, 02/01/2019 – 12/31/2023
- NIH R01 DC018539 (PI Zelano), *Characterizing the primary olfactory subregions of the human amygdala*, role: co-investigator, 02/01/2021 – 01/31/2026
- NIH 2 R01 DC015426 (PI Kahnt), *Principles of olfactory reward processing in the human brain*, 09/01/2021 – 08/31/2026
- NIH R01 DC019405 (PI Gottfried), *Behavioral and Neural Substrates of Odor-Guided Navigation in the Human Brain*, role: subcontract PI, 12/01/2021 – 11/30/2026

Completed Support as a Mentor

- NIH F31 DC015374 (PI Shanahan), *Elucidating mechanisms underlying odor-mediated memory consolidation during sleep and wakefulness*, role: co-sponsor, 09/01/2016 – 08/31/2019
- NIH/NIDCD F31 DC017062 (PI Porter), *Neural and behavioral mechanisms of olfactory generalization in the human brain*, role: co-sponsor, 09/01/2018 – 08/31/2021
- NARSAD Young Investigator Award (PI Howard), *Cortical and neuromodulatory mechanisms underlying reward identity learning*, role: mentor, 01/01/2020 – 12/31/2021
- NIH/NIMH K99 MH122663 (PI Schechtman), *The role of context in sleep-related memory reactivation in humans*, role: advisor, 12/1/2020 – 11/30/2022
- NIDA Intramural Research Program Scientific Director's Fellowship for Diversity in Research (SDFDR) (Christina Lildharrie, IRTA postbac), role: co-mentor, 2022

EDITING AND REVIEWING

Editorial Roles

- Associate Editor, *The Journal of Neuroscience*, 2016-2021
- Reviewing Editor, *eLife*, since 2018
- Guest Editor, *PLoS Biology*, 2020-2022
- Consulting Editor, *Behavioral Neuroscience*, since 2020
- Reviewing Editor, *The Journal of Neuroscience*, since 2021
- Academic Editor, *PLoS Biology*, since 2022

Reviewing for Journals (selection)

Nature, Science, Nature Neuroscience, Nature Reviews Neuroscience, Neuron, Nature Communications,

Nature Human Behavior, JAMA Psychiatry, Biological Psychiatry, Progress in Neurobiology, Proceedings of the National Academy of Sciences USA (PNAS), Current Biology, PLoS Biology, Neuropsychopharmacology, eLife, Journal of Neuroscience, Philosophical Transactions of the Royal Society B, Neuroscience & Biobehavioral Reviews, Cerebral Cortex, NeuroImage, PLoS Computational Biology, Translational Psychiatry, and others.

Reviewing for NIH/CSR

- Ad-hoc reviewer, Somatosensory and Chemosensory Systems (SCS) Study Section, NIH, 2017
- Ad-hoc reviewer, Somatosensory and Pain Systems (SPS) Study Section, NIH, 2017
- Ad-hoc reviewer, Biobehavioral Regulation, Learning and Ethology (BRLE) Study Section, NIH, 2018, 2019
- Standing member, Biobehavioral Regulation, Learning and Ethology (BRLE) Study Section, NIH, 2020-2024

Reviewing for other Funding Agencies (selection)

National Science Foundation (NSF); European Research Council (ERC); French National Research Agency (ANR); German Research Foundation (DFG); Netherlands Organization for Scientific Research (NWO); Research Councils UK (RCUK); Research Foundation – Flanders (FWO); Wellcome Trust (WT).

PROFESSIONAL SOCIETIES MEMBERSHIPS AND SERVICE

Membership

- Society for Neuroscience, since 2007
- Cognitive Neuroscience Society, since 2009
- Society for Neuroeconomics, since 2013
- Association for Chemoreception Sciences, since 2014

Service

- Mentor, *JNeurosci Reviewer Mentoring Program*, since 2018
- Program Committee member, *Association for Chemoreception Sciences*, 2018-2022
- Diversity, Equity, Inclusion and Access Committee member, *Association for Chemoreception Sciences*, since 2023-2025

Organized Symposia

- Cognitive maps in the orbitofrontal cortex for goal-directed behavior (organizer and chair). *Cognitive Neuroscience Society (CNS) Annual Meeting, March 25-28, 2017, San Francisco, CA, USA.*
- Neural circuits supporting cognitive maps for goal-directed behavior (organizer and chair). *Society for Neuroscience (SfN) Annual Meeting, November 11-15, 2017, Washington, DC, USA.*
- Satiety-based modulation of chemosensory processing across organisms (organizer and chair). *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 19-23, 2021, virtual meeting.*
- Neural representations of tasks and the world supporting learning and decision-making (organizer and chair). *European Behavioural Pharmacology Society (EBPS) Biennial Meeting, August 22-25, 2023, Mannheim, Germany.*

INSTITUTIONAL SERVICE

- NUIN Admissions Committee member, 2014-2015

- NUIN Curriculum Committee member, 2016-2022
- NUIN 401-3 Cognitive Section, course director, 2017-2022
- NUIN Systems and Cognitive Neuroscience Qualifying Exam Committee member, 2017-2022
- NUIN Advisory Board member, 2019-2022
- Neurobiology of Information Storage Training Program (T32), Advisory Board, 2020-2022
- NUIN Committee for Diversity Equity and Inclusion, member, 2021-2022
- Mechanisms of Aging and Dementia Training Program (T32), Associate Director, 2021-2022
- NIDA IRP Scientific Director's Fellowship for Diversity in Research (SDFDR), reviewer, 2022-2025
- NIH Earl Stadtman Investigator Program, Systems and Cognitive Neuroscience search committee, member, 2022

TEACHING

- Summer School - Psychiatry as a Science: Genetic Neuroimaging, Charité Berlin, Germany, 2007
- Summer School - Neuroeconomics: An exciting joint venture, University of Amsterdam, Netherlands, 2010
- MSTP Topics in Molecular and Translational Medicine Course (team taught), 2014
- NUIN 401-3 Fundamentals of Neuroscience, Cognitive Section (team taught), 2016
- NUIN 401-3 Fundamentals of Neuroscience, Cognitive Section (course director), 2017-2021
- NUIN 470 Cellular and Molecular Mechanisms of Information Storage (team taught), 2021

PUBLICATIONS

Peer-Reviewed Original Research Articles

1. Wrase J, Schlagenhauf F, Kienast T, Wüstenberg T, Bermanpohl F, **Kahnt T**, Beck A, Ströhle A, Juckel G, Knutson B, Heinz A. Dysfunction of reward processing correlates with alcohol craving in detoxified alcoholics. *Neuroimage*. 2007 Apr 1; 35(2):787-94.
2. Heinz A, Wrase J, **Kahnt T**, Beck A, Bromand Z, Grüsser SM, Kienast T, Smolka MN, Flor H, Mann K. Brain activation elicited by affectively positive stimuli is associated with a lower risk of relapse in detoxified alcoholic subjects. *Alcohol Clin Exp Res*. 2007 Jul; 31(7):1138-47.
3. Wrase J*, **Kahnt T***, Schlagenhauf F, Beck A, Cohen MX, Knutson B, Heinz A. Different neural systems adjust motor behavior in response to reward and punishment. *Neuroimage*. 2007 Jul 15; 36(4):1253-62.
4. Schlagenhauf F, Juckel G, Koslowski M, **Kahnt T**, Knutson B, Dembler T, Kienast T, Gallinat J, Wrase J, Heinz A. Reward system activation in schizophrenic patients switched from typical neuroleptics to olanzapine. *Psychopharmacology (Berl)*. 2008 Mar; 196(4):673-84.
5. **Kahnt T***, Park SQ*, Cohen MX, Beck A, Heinz A, Wrase J. Dorsal striatal-midbrain connectivity in humans predicts how reinforcements are used to guide decisions. *Journal of Cognitive Neuroscience*. 2009 Jul; 21(7):1332-45.
6. Bermanpohl F, Dalanay U, Kahnt T, Sajonz B, Heimann H, Ricken R, Stoy M, Hägele C, Schlagenhauf F, Adli M, Wrase J, Ströhle A, Heinz A, Bauer M. A preliminary study of increased amygdala activation to positive affective stimuli in mania. *Bipolar Disorder*. 2009 Feb; 11(1):70-5.
7. Beck A, Schlagenhauf F, Wüstenberg T, Hein J, Kienast T, **Kahnt T**, Schmack K, Hägele C, Knutson B, Heinz A, Wrase J. Ventral striatal activation during reward anticipation correlates with impulsivity in alcoholics. *Biological Psychiatry*. 2009 Oct 15; 66(8):734-42.
8. Bermanpohl F, **Kahnt T**, Dalanay U, Hägele C, Sajonz B, Wegner T, Stoy M, Adli M, Krüger S, Wrase J, Ströhle A, Bauer M, Heinz A. Altered representation of expected value in the orbitofrontal cortex in mania. *Human Brain Mapping*. 2010 Jul; 31(7):958-69.

9. Sajonz B, **Kahnt T**, Margulies DS, Park SQ, Wittmann A, Stoy M, Ströhle A, Heinz A, Northoff G, Bermpohl F. Delineating self-referential processing from episodic memory retrieval: common and dissociable networks. *Neuroimage*. 2010 May 1; 50(4):1606-17.
10. **Kahnt T**, Heinzle J, Park SQ, Haynes JD. The neural code of reward anticipation in human orbitofrontal cortex. *PNAS*. 2010 Mar 30; 107(13):6010-5.
11. Park SQ*, **Kahnt T***, Beck A, Cohen MX, Dolan RJ, Wrase J, Heinz A. Prefrontal cortex fails to learn from reward prediction errors in alcohol dependence. *Journal of Neuroscience*. 2010 Jun 2; 30(22):7749-53. **Featured article "This Week in the Journal" J. Neurosci. 2010, 30(22).**
12. **Kahnt T**, Heinzle J, Park SQ, Haynes JD. Decoding different roles for vmPFC and dlPFC in multi-attribute decision making. *Neuroimage*. 2011 May 15; 56(2):709-15.
13. Heinzle J, **Kahnt T**, Haynes JD. Topographically specific functional connectivity between visual field maps in the human brain. *Neuroimage*. 2011 Jun 1; 56(3):1426-36.
14. **Kahnt T***, Grueschow M*, Speck O, Haynes JD. Perceptual learning and decision-making in human medial frontal cortex. *Neuron*. 2011 May 12; 70(3):549-59.
15. Park SQ, **Kahnt T**, Rieskamp J, Heekeren HR. Neurobiology of value integration: when value impacts valuation. *Journal of Neuroscience*. 2011 Jun 22; 31(25):9307-14.
16. **Kahnt T**, Heinzle J, Park SQ, Haynes JD. Decoding the formation of reward predictions across learning. *Journal of Neuroscience*. 2011 Oct 12; 31(41):14624-30.
17. van den Bos W, Cohen MX, **Kahnt T**, Crone EA. Striatum-medial prefrontal cortex connectivity predicts developmental changes in reinforcement learning. *Cerebral Cortex*. 2012 Jun; 22(6):1247-55.
18. Park SQ, **Kahnt T**, Talmi D, Rieskamp J, Dolan RJ, Heekeren HR. Adaptive coding of reward prediction errors is gated by striatal coupling. *PNAS*. 2012 Mar 13; 109(11):4285-9.
19. **Kahnt T**, Chang LJ, Park SQ, Heinzle J, Haynes JD. Connectivity-based parcellation of the human orbitofrontal cortex. *Journal of Neuroscience*. 2012 May 2; 32(18):6240-50.
20. Imamoglu F, **Kahnt T**, Koch C, Haynes JD. Changes in functional connectivity support conscious object recognition. *Neuroimage*. 2012 Dec; 63(4):1909-17.
21. **Kahnt T**, Park SQ, Burke CJ, Tobler PN. How glitter relates to gold: similarity-dependent reward prediction errors in the human striatum. *Journal of Neuroscience*. 2012 Nov 14; 32(46):16521-9.
22. **Kahnt T**, Tobler PN. Saliency signals in the right temporoparietal junction facilitate value-based decisions. *Journal of Neuroscience*. 2013 Jan 16; 33(3):863-9.
23. Burke CJ, Brünger C, **Kahnt T**, Park SQ, Tobler PN. Neural integration of risk and effort costs by the frontal pole: only upon request. *Journal of Neuroscience*. 2013 Jan 23; 33(4):1706-13a.
24. Tusche A, **Kahnt T**, Wisniewski D, Haynes JD. Automatic processing of political preferences in the human brain. *Neuroimage*. 2013 May 15; 72:174-82.
25. Weygandt M, Mai K, Dommès E, Leupelt V, Hackmack K, **Kahnt T**, Rothemund Y, Spranger J, Haynes JD. The role of neural impulse control mechanisms for dietary success in obesity. *Neuroimage*. 2013 Dec; 83:669-78.
26. **Kahnt T**, Park SQ, Haynes JD, Tobler PN. Disentangling neural representations of value and saliency in the human brain. *PNAS*. 2014 Apr 1; 111(13):5000-5.
27. **Kahnt T**, Weber SC, Haker H, Robbins TW, Tobler PN. Dopamine D2-receptor blockade enhances decoding of prefrontal signals in humans. *Journal of Neuroscience*. 2015 Mar 4; 35(9):4104-11.
28. Howard JD, Gottfried JA, Tobler PN, **Kahnt T**. Identity-specific coding of future rewards in the human orbitofrontal cortex. *PNAS*. 2015 Apr 21; 112(16):5195-200.
29. Wisniewski D, Reverberi C, Momennejad I, **Kahnt T**, Haynes JD. The Role of the Parietal Cortex in the Representation of Task-Reward Associations. *Journal of Neuroscience*. 2015 Sep 9; 35(36):12355-65.
30. Weber KA 2nd, Chen Y, Wang X, **Kahnt T**, Parrish TB. Lateralization of cervical spinal cord activity during an isometric upper extremity motor task with functional magnetic resonance imaging. *Neuroimage*. 2016 Jan 15; 125:233-43.
31. Qu LP, **Kahnt T**, Cole SM, Gottfried JA. De Novo Emergence of Odor Category Representations in the

- Human Brain. *Journal of Neuroscience*. 2016 Jan 13; 36(2):468-78.
32. **Kahnt T**, Tobler PN. Dopamine regulates stimulus generalization in the human hippocampus. *eLife*. 2016 Feb 2; 5:e12678
 33. Howard JD, **Kahnt T**, Gottfried JA. Converging prefrontal pathways support associative and perceptual features of conditioned stimuli. *Nature Communications*. 2016 May 4; 7:11546.
 34. Weber KA 2nd, Chen Y, Wang X, **Kahnt T**, Parrish TB. Functional magnetic resonance imaging of the cervical spinal cord during thermal stimulation across consecutive runs. *Neuroimage*. 2016 Dec; 143:267-279.
 35. **Kahnt T**, Tobler PN. Dopamine Modulates the Functional Organization of the Orbitofrontal Cortex. *Journal of Neuroscience*. 2017 Feb 8; 37(6):1493-1504.
 36. Howard JD, **Kahnt T**. Identity-Specific Reward Representations in Orbitofrontal Cortex Are Modulated by Selective Devaluation. *Journal of Neuroscience*. 2017 Mar 8; 37(10):2627-2638. **Featured article "This Week in the Journal" J. Neurosci. 2017, 37(10).**
 37. Park SQ, **Kahnt T**, Dogan A, Strang S, Fehr E, Tobler PN. A neural link between generosity and happiness. *Nature Communications*. 2017 Jul 11; 8:15964.
 38. Howard JD, **Kahnt T**. Identity prediction errors in the human midbrain update reward-identity expectations in the orbitofrontal cortex. *Nature Communications*. 2018 Apr 23; 9:1611.
 39. Tegelbeckers J, Kanowski M, Krauel K, Haynes JD, Breilting C, Flechtner H, **Kahnt T**. Orbitofrontal signaling of future reward is associated with hyperactivity in attention-deficit/hyperactivity disorder. *Journal of Neuroscience*. 2018 Jul 25; 38(30):6779–6786.
 40. Weber SC, **Kahnt T**, Quednow BB, Tobler PN. Fronto-striatal pathways gate processing of behaviorally relevant reward dimensions. *PLoS Biology*. 2018 Oct 19; 16(10): e2005722.
 41. Shanahan LK, Gjorgieva E, Paller KA, **Kahnt T**, Gottfried JA. Odor-evoked category reactivation in human ventromedial prefrontal cortex during sleep promotes memory consolidation. *eLife*. 2018 Dec 18; 7:e39681.
 42. Suarez, J, Howard JD, Schoenbaum G, **Kahnt T**. Sensory prediction errors in the human midbrain signal identity violations independent of perceptual distance. *eLife*. 2019 Apr 5; 8:e43962
 43. Bao X, Gjorgieva E, Shanahan LK, Howard JD, **Kahnt T**, Gottfried JA. Grid-like neural representations support olfactory navigation of a two-dimensional coordinate space. *Neuron*. 2019 Jun 5; 102(5):1066-1075
 44. Zhou G, Lane G, Cooper SL, **Kahnt T**, Zelano C. Characterizing functional pathways of the human olfactory system. *eLife*. 2019 Jul 24; 8:e47177
 45. Bhutani S, Howard JD, Reynolds R, Zee PC, Gottfried JA, **Kahnt T**. Olfactory connectivity mediates sleep-dependent food choices in humans. *eLife*. 2019 Oct 8; 8:e49053
 46. Stalnaker TA*, Howard JD*, Takahashi YK, Gershman SJ, **Kahnt T***, Schoenbaum G*. Dopamine neuron ensembles signal the content of sensory prediction errors. *eLife*. 2019 Nov 1; 8:e49315
 47. Wang F, Schoenbaum G, **Kahnt T**. Interactions between human orbitofrontal cortex and hippocampus support model-based inference. *PLoS Biology*. 2020 Jan 21; 18(1): e3000578.
 48. Howard JD, Reynolds R, Smith D, Voss JL, Schoenbaum G, **Kahnt T**. Targeted stimulation of human orbitofrontal networks disrupts outcome-guided behavior. *Current Biology*. 2020 Feb 3; 30(3):490-498
 49. Wang F, Howard JD, Voss JL, Schoenbaum G, **Kahnt T**. Targeted stimulation of an orbitofrontal network disrupts decisions based on inferred, not experienced outcome. *Journal of Neuroscience*. 2020 Nov 4; 40(45):8726-8733.
 50. Hebscher M, Kragel JE, **Kahnt T**, Voss JL. Enhanced reinstatement of naturalistic event memories due to hippocampal-network-targeted stimulation. *Current Biology*. 2021 April 12; 31(7):1428-1437.
 51. Shanahan LK, Bhutani S, **Kahnt T**. Olfactory perceptual decision-making is biased by motivational state. *PLoS Biology*. 2021 Aug 26; 19(8):e3001374.
 52. Porter DB, Qu LP, **Kahnt T**, Gottfried JA. Aversive outcomes impact human olfactory discrimination learning and generalization. *Behavioral Neuroscience*. 2021 Oct; 135(5):642-653.

53. Soutschek A, Weber SC, **Kahnt T**, Beck-Schimmer B, Quednow BB, Tobler PN. Opioid antagonism modulates wanting-related frontostriatal connectivity. *eLife*. 2021 Nov 11;10:e71077
54. Echevarria-Cooper SL, Zhou G, Zelano C, Pestilli F, Parrish TB, **Kahnt T**. Mapping the microstructure and striae of the human olfactory tract with diffusion MRI. *Journal of Neuroscience*. 2022 Jan 5; 42(1): 58-68
55. Huys QJM., Russek EM, Abitante G, **Kahnt T**, Gollan JK. Components of behavioral activation therapy for depression engage specific reinforcement learning mechanisms in a pilot study. *Computational Psychiatry*, 2022 Oct 13; 6(1):238–255.
56. Hart EE, Gardner MPH, **Kahnt T**, Schoenbaum G. Calcium activity is a degraded estimate of spikes. *Current Biology*. 2022 Dec 19; 32(24):5364-5373.e4
57. Raithel CU, Miller AJ, Epstein RA, **Kahnt T**, Gottfried JA. Recruitment of grid-like responses in human entorhinal and piriform cortices by odor landmark-based navigation. *Current Biology*, 2023 Sep 11; 33(17):3561-3570.
58. Sagar V, Shanahan LK, Zelano CM, Gottfried JA, **Kahnt T**. High-precision mapping reveals the structure of odor coding in the human brain. *Nature Neuroscience*, 2023 Sep; 26(9):1595–1602
59. Tegelbeckers J, Porter DB, Voss JL, Schoenbaum G, **Kahnt T**. Lateral orbitofrontal cortex integrates predictive information across multiple cues to guide behavior. *Current Biology*, 2023 Oct 23; 33(20):4496-4504.
60. Zhao Y, Bhutani S, **Kahnt T**. Appetite-regulating hormones modulate odor perception and odor-evoked activity in hypothalamus and olfactory cortices. *Chemical Senses*, 2023 Oct 5; 48:1–10
61. Echevarria-Cooper SL, Ho EH, Gershon RC, Weintraub S, **Kahnt T**. Evaluation of the NIH Toolbox Odor Identification Test across Normal Cognition, Amnesic Mild Cognitive Impairment, and Dementia due to Alzheimer's Disease. *Alzheimer's & Dementia*, 2024; 20:288–300.
62. Liu Q, Zhao Y, Attanti S, Voss JL, Schoenbaum G, **Kahnt T**. Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Nature Communications*, 2024 Feb 24; 15:1704.
63. Zhou G, Lane G, **Kahnt T**, Zelano CM. Structural connectivity between olfactory tubercle and ventrolateral periaqueductal gray implicated in human feeding behavior. *Journal of Neuroscience*, 2024 Jun 19; 44(25):e2342232024
64. Howard JD, Edmonds D, Schoenbaum G, **Kahnt T**. Distributed midbrain responses signal the content of positive identity prediction errors. *Current Biology*, 2024 Sep 23; 34(18):4240-4247.
65. Zhang Z*, Takahashi Y*, Montesinos-Cartagena M, **Kahnt T**, Langdon A*, Schoenbaum G*. Expectancy-related changes in firing of dopamine neurons depend on hippocampus. *Nature Communications*, 2024 Oct 16; 15:8911
66. Shanahan LK*, Mithal LB*, Office E, Seed P, **Kahnt T**. Characterizing olfactory brain responses in young infants. *Journal of Neuroscience*, 2025, *In press*

Peer-Reviewed Review Articles

1. Heinzle J, Anders S, Bode S, Bogler C, Chen Y, Cichy RM, Hackmack K, **Kahnt T**, Kalberlah C, Reverberi C, Soon CS, Tusche A, Weygandt M, Haynes JD. Multivariate decoding of fMRI data. *e-Neuroforum*, 2012 3(1):1-16.
2. **Kahnt T**. A decade of decoding reward-related fMRI signals and where we go from here. *Neuroimage*. 2018 Oct 15; 180(Pt A):324-333
3. Howard JD, **Kahnt T**. Causal investigations into orbitofrontal control of human decision making. *Current Opinion in Behavioral Sciences*. 2021 Apr; 38:14-19.
4. Howard JD, **Kahnt T**. To be specific: the role of orbitofrontal cortex in signaling reward identity. *Behavioral Neuroscience*. 2021 Apr; 135(2):210-217.
5. Wang F, **Kahnt T**. Neural circuits for inference-based decision-making. *Current Opinion in Behavioral Sciences*. 2021 Oct; 41:10-14.
6. **Kahnt T**, Schoenbaum G. Cross-species studies on orbitofrontal control of inference-based behavior. *Behavioral Neuroscience*. 2021 Apr; 135(2):109-119.

7. **Kahnt T.** Neural mechanisms underlying expectation-guided decision-making. *Frontiers in Behavioral Neuroscience*. 2022 Jul 1; 16:943419.
8. Shanahan LK, **Kahnt T.** On the state-dependent nature of odor perception. *Frontiers in Neuroscience*. 2022 Aug 26; 16:964742.
9. **Kahnt T.** Computationally informed interventions for targeting compulsive behaviors. *Biological Psychiatry*. 2023 Apr 15; 93(8):729-738.
10. **Kahnt T, Schoenbaum G.** The curious case of dopaminergic prediction errors and learning associative information beyond value. *Nature Reviews Neuroscience*, 2025 Jan 8; doi.org/10.1038/s41583-024-00898-8

Book Chapters and Commentaries

1. **Kahnt T, Tobler PN.** Reward, value, and salience. In *Decision Neuroscience – An Integrative Perspective*, 2016, J.C. Dreher, and L. Tremblay, eds. (Academic press, Elsevier)
2. Sagar V, **Kahnt T.** Neuronal plasticity: Genetic signatures of memories. *eLife*, 2018 Mar 21; 7:e36064
3. Echevarria-Cooper SL, **Kahnt T.** The role of memory in addiction: a commentary on Bornstein and Pickard memory sampling theory. *Neuropsychopharmacology*. 2020 May; 45(6):903-904.
4. **Kahnt T.** Representations of value in the brain. In *The SAGE Handbook of Cognitive and Systems Neuroscience*, 2023, G.J. Boyle, ed. (SAGE Publications Ltd).
5. **Kahnt T.** Outcome-specific reward processing and decision-making. In *Encyclopedia of the Human Brain, Section 15. Reward & Reinforcement*, 2024, J. Grafman, ed. (Elsevier Science Publishers).

PRESENTATIONS

Invited Department Seminars

- Locally Distributed Coding of Decision Values - Combining Computational Models and Multivariate Decoding. November 2010. *Department of Psychology, University of Arizona, Tucson, AZ, USA.*
- Locally Distributed Coding of Predicted Reward. September 2011. *Department of Psychology, University of Basel, Switzerland.*
- Using Machine Learning to Study Representations of Predicted Reward. March 2012. *Department of Behavioral Economics, University of Zürich, Switzerland.*
- Understanding the neural basis of learning and decision making. September 2012. *Wellcome Trust Centre for Neuroimaging, University College London, U.K.*
- Decoding decision variables from spatially distributed brain signals. October 2012. *Department of Psychiatry, Universität zu Lübeck, Germany.*
- Modeling and decoding reward representations in the human brain. December 2012. *Department of Psychology, Otto-von-Guericke-Universität Magdeburg, Germany.*
- Advanced model-based fMRI to study learning and decision making. March 2013. *Department of Psychology, Free University Berlin, Germany.*
- Decoding and parcellation approaches to understand OFC function. May 2013. *Berlin Center for Advanced Neuroimaging, Berlin, Germany.*
- Modeling and decoding reward representations in the human brain. June 2013. *Department of Psychology, Technische Universität Dresden, Germany.*
- Modeling and decoding decision signals in the human brain. July 2013. *National Institute of Drug Abuse, National Institutes of Health (NIH/NIDA), Baltimore, MD, USA.*
- Modeling and decoding decision signals in the human brain. November 2013. *The Institute of Cognitive Science, University of Colorado Boulder, CO, USA.*
- Modeling and decoding decision signals in the human brain. December 2013. *Zurich University Hospital for Psychiatry, Zürich, Switzerland.*

- Modeling and decoding decision signals in the human brain. December 2013. *Department of Psychology and Brain Sciences, Indiana University, Bloomington, IN, USA.*
- Modeling and decoding decision signals in the human brain. December 2013. *Department of Neurology, Northwestern University Feinberg School of Medicine, Chicago, IL, USA.*
- Specific and general predictive value codes in the human orbitofrontal cortex. March 2014. *Department of Behavioral Economics, University of Zürich, Switzerland.*
- Decoding reward signals from human brain activity. May 2015. *Department of Psychiatry and Behavioral Sciences, Northwestern University, Chicago, IL, USA.*
- fMRI pattern analysis as a tool to understand reward processing. July 2015. *Department of Physiology, Northwestern University, Chicago, IL, USA.*
- The nature of food reward representations in the human brain. September 2016. *Department of Psychology and Brain Sciences, Indiana University, Bloomington, IN, USA.*
- The nature of expected reward representations in the human orbitofrontal cortex. October 2016. *Department of Psychology, Northwestern University, Evanston, IL, USA.*
- How the human brain represents future rewards for goal-directed behavior. January 2017, *Berlin School of Mind and Brain, Humboldt University of Berlin, Germany.*
- Learning value-neutral features of specific outcomes. June 2018. *Princeton Neuroscience Institute, Princeton University, NJ, USA.*
- Orbitofrontal contributions to goal-directed behavior. June 2018. *Department of Psychology, Rutgers University, Newark, NJ, USA.*
- Using odors to study neural mechanisms of food choice and its modulation by sleep deprivation. January 2019. *Department of Psychiatry and Behavioral Sciences, Johns Hopkins University, Baltimore, MD, USA.*
- Orbitofrontal contributions to outcome-guided behavior. January 2019. *Department of Psychology, NYU, New York, NY, USA.*
- Orbitofrontal contributions to outcome-guided behavior. March 2019. *Cognitive Neuroscience Laboratory, Rehabilitation Institute of Chicago (RIC), Chicago, IL, USA.*
- How the orbitofrontal cortex supports inference-based behavior. March 2019, *Department of Neuroscience, Icahn School of Medicine at Mount Sinai, New York, NY, USA.*
- Contributions of the human orbitofrontal cortex to outcome-guided behavior. April 2019, *National Institute on Drug Abuse, National Institutes of Health (NIH/NIDA), Baltimore, MD, USA.*
- Contributions of the human orbitofrontal cortex to outcome-guided behavior. May 2019, *National Institute on Drug Abuse, Division of Neuroscience and Behavior, National Institutes of Health, Bethesda, MD, USA.*
- Contributions of the human orbitofrontal cortex to outcome-guided behavior. July 2019. *NISTP retreat, Lake Geneva, WI, USA.*
- Contributions of the human orbitofrontal cortex to outcome-guided behavior. December 2019, *Joint Seminars in Neuroscience Lecture, UCLA, Los Angeles, CA, USA.*
- How the human orbitofrontal cortex supports decision making. January 2020. *Clinical Psychology Brown Bag Series, Northwestern University, Evanston, IL, USA.*
- How the human orbitofrontal cortex supports decision making. February 2020. *Interdisciplinary Lecture Series in Neuroscience, Department of Pediatrics, Northwestern University Feinberg School of Medicine, Chicago, IL, USA.*
- How does the human orbitofrontal cortex contribute to decision making? April 2020. *Department of Psychiatry, Columbia University, New York City, NY, USA.*
- Inference-based behavior depends on outcome-specific expectations in orbitofrontal cortex. September 2020, *Rutgers-Princeton Center for Computational Cognitive Neuropsychiatry, Piscataway, NJ, USA.*
- Contributions of orbitofrontal cortex to inference-based behavior. November 2020, *Department of Psychiatry, University of Iowa, Iowa City, IA, USA.*
- How does the human orbitofrontal cortex contribute to decision making? December 2020, *National Institute on*

- Drug Abuse, National Institutes of Health (NIH/NIDA), Baltimore, MD, USA.*
- How does the human orbitofrontal cortex contribute to decision making? January 2021, *Center for Advanced Human Brain Imaging Research, Brain Health Institute, Rutgers University, Piscataway, NJ, USA.*
- How does the human orbitofrontal cortex contribute to decision-making? February 2021, *Northwestern University, Kellogg School of Management, Kellogg Behavioral Brown Bag Seminar, Evanston, IL, USA.*
- Neurobiology of human olfaction and its role in food intake and aging. May 2021, *National Institute on Aging, National Institutes of Health (NIH/NIA), Baltimore, MD, USA.*
- How does the orbitofrontal cortex contribute to decision-making? September 2021, *Center for Computational Psychiatry, Icahn School of Medicine at Mount Sinai, NY, USA.*
- How does the orbitofrontal cortex contribute to decision-making? October 2021, *Loyola University, Neuroscience Seminar, Chicago, IL, USA.*
- Neurobiology of human olfaction and its disruption in dementia. January 2022, *Mesulam Center Seminar Series, Northwestern University, Chicago, IL, USA.*
- Midbrain signaling of sensory prediction errors and outcome-specific learning. June 2022, *Center on Compulsive Behavior Summer Seminar, National Institutes of Health, MD, USA.*
- Neural and computational systems for adaptive decision-making. July 2022, *Addiction Grand Rounds, National Institute on Drug Abuse, National Institutes of Health (NIH/NIDA), Baltimore, MD, USA.*
- Midbrain signaling of sensory prediction errors and outcome-specific learning. November 2022, *Biology Colloquium, Illinois Institute of Technology, IL, USA.*
- Neural systems-level mechanisms of adaptive decision-making. April 2023, *Noninvasive Brain Stimulation Scientific Interest Group, National Institute of Health Intramural Research Program (NIH IRP), MD, USA.*
- Neural systems-level mechanisms of adaptive decision-making. May 2023, *National Institute on Drug Abuse, Division of Neuroscience and Behavior, National Institutes of Health, Bethesda, MD, USA.*
- Using high-precision imaging to reveal the structure of odor coding in the human brain. July 2023, *NIA/NIDA Clinical Research Day, National Institute on Aging & National Institute on Drug Abuse, National Institutes of Health Intramural Research Program, Baltimore, MD, USA.*
- Characterizing sensory prediction errors and their role in stimulus-outcome learning. October 2023, *Psychology Department Colloquium Series, Rhodes College, Memphis, TN, USA.*
- Characterizing sensory prediction errors and their role in stimulus-outcome learning. February 2024, *Maryland Psychiatric Research Center Seminar Series, University of Maryland, Catonsville, MD, USA.*
- Characterizing sensory prediction errors and their role in stimulus-outcome learning. September 2024, *Neuroscience Department Seminar Series, Albert Einstein College of Medicine, Bronx, NY, USA.*
- Orbitofrontal contributions to outcome-guided behavior. October 2024, *Department of Psychology, University of Hamburg, Germany.*
- Orbitofrontal contributions to outcome-guided behavior. October 2024, *Zanvyl Krieger Mind/Brain Institute, Johns Hopkins University, Baltimore, MD, USA.*
- Orbitofrontal contributions to outcome-guided behavior. November 2024, *Neuroscience Colloquium Series, Florida State University, Tallahassee, FL, USA.*
- Sensory prediction errors and their role in stimulus-outcome learning. May 2025, *Department of Neuroscience, Icahn School of Medicine at Mount Sinai, New York, NY, USA.*

Invited Conference Talks

- Neuroeconomics: Neural Foundations of Decision Making. *Integrative Neuroscience Symposium 2012, March 12-13, 2012, Metropolitan University of Mexico (UAM), Mexico City, Mexico.*
- fMRI pattern analysis as a tool to understand reward processing. *2nd Lübecker Short Course on fMRI Data Acquisition and Analysis, December 5, 2013, Universität zu Lübeck, Germany.*
- The nature of expected outcome representations in the human orbitofrontal cortex. *Third Quadrennial Meeting*

on Orbitofrontal Cortex Function, September 30 - October 2, 2015, Paris, France.

The nature of expected outcome representations in the human orbitofrontal cortex. *Decision Neuroscience in Humans, June 06-8, 2016, Delmenhorst, Germany.*

Sleep-dependent coding of food odors in humans. *ObesityWeek (Annual meetings of the American Society for Metabolic & Bariatric Surgery and The Obesity Society), November 11-15, 2018, Nashville, TN.*

Inference-based behavior depends on outcome-specific expectations in orbitofrontal cortex. *4th Quadrennial Meeting on Orbitofrontal Cortex Function, November 13-15, 2019, Paris, France.*

Neural mechanisms underlying expectation-guided decision-making. *Credition - An Interdisciplinary Challenge, October 20-22, 2021, Hannover, Germany.*

Integrating multiple outcome predictions relies on lateral orbitofrontal cortex. *Meeting on the Neurobiology of Reward and Decision-making, May 8-12, 2022, Lake Arrowhead, CA, USA.*

Orbitofrontal contributions the flexible use of associative information. *From imagination to reality: physiology and pathology of higher-order conditioning, December 18, 2023, Bordeaux, France.*

Lateral orbitofrontal cortex integrates predictive information across multiple cues. *5th Quadrennial Meeting on Orbitofrontal Cortex Function, April 23-25, 2024, Paris, France.*

Talks at Conferences

Kahnt T. Adjustment of motor behavior in response to reward and punishment. *5th Charité Conference on Psychiatric Research: Emotional Neuroscience, September 22-23, 2006, Berlin, Germany.*

Kahnt T, Beck A, Park SQ, Kienast T, Heinz A, Wrase J. Decision-making deficits in addiction. *11th Congress of the Society for Biomedical Research on Alcoholism, September 23-26, 2007, Berlin, Germany.*

Kahnt T. Neural basis of reinforcement learning and dynamic decision adjustment. *6th Charité Conference on Psychiatric Research: Emotional Neuroscience, August 31 - September 1, 2007, Berlin, Germany.*

Kahnt T, Park SQ, Cohen MX, Beck A, Heinz A, Wrase J. Dorsal striatal-midbrain connectivity in humans predicts how reinforcements are used to guide decisions. *7th Charité Conference on Psychiatric Research: Emotional Neuroscience, August 28-30, 2008, Berlin, Germany.*

Kahnt T, Park SQ, Cohen MX, Beck A, Heinz A, Wrase J. Dorsal striatal-midbrain connectivity in humans predicts how reinforcements are used to guide decisions. *Neuroscience 2008 (SfN), November 15-19, 2008, Washington D.C., USA.*

Kahnt T, Heinzle J, Park SQ, Haynes JD. The neural code of reward anticipation in human orbitofrontal cortex. *6th Berlin Brain Days (BBD), December 9-11, 2009, Berlin, Germany.*

Kahnt T, Heinzle J, Park SQ, Haynes JD. Locally distributed coding of expected value and reward variability in multi-attribute decision making. *7th Berlin Brain Days (BBD), November 1-3, 2010, Berlin, Germany.*

Kahnt T, Grueschow M, Speck O, Haynes JD. Perceptual learning and decision making in human medial frontal cortex. *Cognitive Neuroscience Society (CNS) Annual Meeting, April 3-5, 2011, San Francisco, CA, USA. (GSP award winner)*

Kahnt T, Park SQ, Haynes JD, Tobler PN. Representations of motivational value and salience in the human brain. *Society for Neuroeconomics, Annual Meeting, September 27-29, 2013, Lausanne, Switzerland.*

Kahnt T. Flexible state representations of specific rewards in the human orbitofrontal cortex. *Cognitive Neuroscience Society (CNS) Annual Meeting, March 25-28, 2017, San Francisco, CA, USA.*

Kahnt T. Representations of specific outcomes in the orbitofrontal cortex. *Neuroscience 2017 (SfN), November 11-15, 2017, Washington, DC, USA.*

Kahnt T. Human midbrain supports learning of value-neutral outcome features. *Winter Conference on Brain Research, January 14-20, 2018, Whistler, B.C., Canada.*

Kahnt T. Modulation of piriform cortex encoding and connectivity by sleep deprivation. *40th Annual Meeting of the Association for Chemoreception Sciences (AChemS), Satellite Symposium, April 16-17, 2018, Bonita Springs, FL, USA.*

Bhutani S, Howard JD, Gottfried JA, **Kahnt T.** Sleep deprivation enhances encoding of odors in piriform cortex

and food intake through piriform-insula connectivity. *Neuroscience 2018 (SfN), November 3-7, 2018, San Diego, CA, USA.*

Kahnt T. Human orbitofrontal networks are necessary for outcome-guided behavior. *58th Annual Meeting of the American College of Neuropsychopharmacology (ACNP), December 8-11, 2019, Orlando, FL, USA.*

Kahnt T. Testing the contribution of human orbitofrontal cortex to inference-based decision making using targeted network stimulation. *Cognitive Neuroscience Society (CNS) 27th Annual Meeting, March 13-16, 2021, virtual meeting.*

Kahnt T. Satiety-based modulation of chemosensory processing across organisms. *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 19-23, 2021, virtual meeting.*

Kahnt T. Identity prediction errors in the human midbrain and their role in stimulus-outcome learning. *European Behavioral Pharmacology Society (EBPS), July 13-16, 2021, virtual meeting.*

Kahnt T. Orbitofrontal representations of specific rewards for adaptive behavior. *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 20-24, 2022, Bonita Springs, FL, USA.*

Kahnt T. Characterizing sensory prediction errors in the human midbrain and their role in stimulus-outcome learning. *Dopamine 2022, May 21-25, 2022, Montreal, Quebec, Canada.*

Sagar V, Shanahan LK, Zelano CM, Gottfried JA, **Kahnt T.** Using high-precision mapping to reveal the structure of odor coding in the human brain. *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 19-22, 2023, Bonita Springs, FL, USA.*

Kahnt, T. Characterizing sensory prediction errors and their role in stimulus-outcome learning. *Pavlovian Society Annual Meeting, September 21-23, 2023, Austin, TX, USA.*

Selected Conference Presentations (first & last author)

Kahnt T, Wrase J, Makris N, Schumann G, Gasic GP, Breiter HC, Heinz A. Amygdala Volume Is Associated With Craving, Alcohol Relapse and Cannabinoid Receptor 1 Polymorphism. *5th Forum of European Neuroscience (FENS), July 8-12, 2006, Vienna, Austria.*

Kahnt T, Wrase J, Schlagenhaut F, Beck A, Cohen MX, Knutson B, Heinz A, Wrase J. Different neural systems adapt motor behavior in response to reward and punishment. *5th Charité Conference on Psychiatric Research: Emotional Neuroscience, September 22-23, 2006, Berlin, Germany.*

Kahnt T, Park, SQ, Beck A, Schlagenhaut F, Cohen MX, Knutson B, Heinz A, Wrase J. Different neural systems adapt motor behavior in response to reward and punishment. *13th Annual Meeting of the OHBM, June 10-14, 2007, Chicago, IL, USA.*

Kahnt T, Park SQ, Beck A, Cohen MX, Heinz A, Wrase J. Neural responses to reinforcement learning and flexible decision adjustment in probabilistic reversal learning: Insights from reinforcement learning theory. *Neuroscience 2007 (SfN), November 3-7, 2007, San Diego, CA, USA.*

Kahnt T, Haynes JD. Decoding the expected value of multi-attribute objects from the human brain. *13th Annual Meeting of the Association for the Scientific Study of Consciousness (ASSC), June 5-8, 2009, Berlin, Germany.*

Kahnt T, Heinzle J, Park SQ, Haynes JD. Expected values of multi-attribute objects in the human prefrontal cortex and amygdala. *Bernstein Conference on Computational Neuroscience (BCCN), September 30 - October 3, 2009, Frankfurt, Germany.*

Kahnt T, Heinzle J, Park SQ, Haynes JD. Expected values of multi-attribute objects in the human prefrontal cortex and amygdala. *Neuroscience 2009 (SfN), October 13-17, 2009, Chicago, IL, USA.*

Kahnt T, Heinzle J, Park SQ, Haynes JD. The neural code of reward anticipation in human orbitofrontal cortex. *Cognitive Neuroscience Society (CNS) Annual Meeting, April 17-20, 2010, Montreal, Canada.*

Kahnt T, Heinzle J, Park SQ, Haynes JD. Locally distributed coding of reward value in human orbitofrontal cortex. *Decision Neuroscience – From Neurons to Societies, September 23-25, 2010, Berlin, Germany.*

Kahnt T, Heinzle J, Park SQ, Haynes JD. Locally distributed coding of reward value in human orbitofrontal cortex. *Neuroscience 2010 (SfN), November 13-17, 2010, San Diego, CA, USA.*

Kahnt T, Grueschow M, Speck O, Haynes JD. Reinforcement learning accounts for perceptual learning and

- decision making in human medial frontal cortex. *Neuroscience 2011 (SfN), November 12-16, 2011, Washington D.C., USA.*
- Kahnt T**, Park SQ, Burke, CJ, Tobler PN. How glitter relates to gold: Generalized reward prediction errors in the human striatum. *Neuroscience 2012 (SfN), Oktober 13-17, 2012, New Orleans, LA, USA.*
- Kahnt T**, Park SQ, Haynes JD, Tobler PN. Reconciling neural representations of value and salience in the human parietal and orbitofrontal cortex. *Neuroscience 2013 (SfN), November 9-13, 2013, San Diego, CA, USA.*
- Kahnt T**, Park SQ, Haynes JD, Tobler PN. Reconciling neural representations of value and salience in the human parietal and orbitofrontal cortex. *Cognitive Neuroscience Society (CNS) Annual Meeting, April 5-8, 2014, Boston, MA, USA.*
- Kahnt T**, Howard JD, Gottfried, JA, Tobler PN. Specific and general predictive value codes in the human orbitofrontal cortex. *36th Annual Meeting of the Association for Chemoreception Sciences (AChemS), April 9-12, 2014, Bonita Springs, FL, USA.*
- Kahnt T**, Weber S, Hacker H, Robbins TW, Tobler PN. Dopamine D2-receptor blockage stabilizes orbitofrontal reward representations. *Society for Neuroeconomics, Annual Meeting, September 26-28, 2014, Miami, FL, USA.*
- Kahnt T**, Weber S, Hacker H, Robbins TW, Tobler PN. Dopamine D2-receptor blockage stabilizes orbitofrontal reward representations. *Neuroscience 2014 (SfN), November 15-19, 2014, Washington, D.C. USA.*
- Howard JD, Gottfried JA, Tobler PN, **Kahnt T**. Neural circuitry underlying expected food odor value in humans. *37th Annual Meeting of the Association for Chemoreception Sciences (AChemS), April 9-12, 2015, Bonita Springs, FL, USA.*
- Howard JD, **Kahnt T**. Neural coding of sensory-specific choice values in human orbitofrontal cortex. *Third Quadrennial Meeting on Orbitofrontal Cortex Function, September 30-October 2, 2015, Paris, France.*
- Howard JD, **Kahnt T**. Food odors reinforce human behavior in a value-based choice task. *Neuroscience 2015 (SfN), October 17-21, 2015, Chicago, IL, USA.*
- Howard JD, **Kahnt T**. Devaluation modulates identity-specific outcome representations in the human brain. *16th Annual Brain Research Foundation Neuroscience Day, January 22, 2016. Chicago, IL, USA.*
- Howard JD, **Kahnt T**. Sensory-specific Satiety Modulates Neural Representations of Expected Food Odor Rewards in Humans. *38th Annual Meeting of the Association for Chemoreception Sciences (AChemS), April 20-23, 2016, Bonita Springs, FL, USA.*
- Howard JD, **Kahnt T**. General and specific modulation of reward identity representations in human OFC after satiety. *Neuroscience 2016 (SfN), November 12-16, 2016, San Diego, CA, USA.*
- Tegelbeckers J, Kanowski M, Breitling C, Krauel K, Haynes JD, Flechtner H, **Kahnt T**. Altered anticipatory reward representation in the orbitofrontal cortex in children and adolescents with ADHD. *Neuroscience 2016 (SfN), November 12-16, 2016, San Diego, CA, USA.*
- Howard JD **Kahnt T**. Devaluation modulates representations of expected outcome identity in orbitofrontal cortex. *Cosyne 2017, February 23-26, 2017, Salt Lake City, UT, USA.*
- Howard JD, **Kahnt T**. Reward identity prediction error signaling in human orbitofrontal cortex. *Cognitive Neuroscience Society (CNS) Annual Meeting, March 25-28, 2017, San Francisco, CA, USA.*
- Bhutani S, Gottfried JA, **Kahnt T**. Central olfactory mechanisms underlying sleep-dependent changes in food processing. *Cognitive Neuroscience Society (CNS) Annual Meeting, March 25-28, 2017, San Francisco, CA, USA.*
- Suarez J, **Kahnt T**. Orbitofrontal cortex signals reward prediction errors for food odor identity using a perceptual similarity coding scheme. *39th Annual Meeting of the Association for Chemoreception Sciences (AChemS), April 26-29, 2017, Bonita Springs, FL, USA.*
- Howard JD, **Kahnt T**. Overlapping error signals for value- and identity-based state transitions in the human midbrain. *Society for Neuroeconomics, Annual Meeting, October 6-8, 2017, Toronto, ON, Canada.*
- Bhutani S, Howard JD, Gottfried JA, **Kahnt T**. Sleep-deprivation enhances processing of food odors in olfactory cortex. *Neuroscience 2017 (SfN), November 11-15, 2017, Washington, DC, USA.*

- Howard JD, **Kahnt T.** Reward identity and value prediction errors differentially update task state representations in human orbitofrontal cortex and amygdala. *Neuroscience 2017 (SfN), November 11-15, 2017, Washington, DC, USA.*
- Bhutani S, Howard JD, Gottfried JA, **Kahnt T.** Sleep deprivation enhances encoding of food odors in piriform cortex and promotes food intake through piriform-insula connectivity. *40th Annual Meeting of the Association for Chemoreception Sciences (AChemS), April 17-20, 2018, Bonita Springs, FL, USA.*
- Howard JD, **Kahnt T.** Identity prediction errors in the human midbrain update reward-identity expectations in the orbitofrontal cortex. *40th Annual Meeting of the Association for Chemoreception Sciences (AChemS), April 17-20, 2018, Bonita Springs, FL, USA.*
- Suarez J, Reynolds R, **Kahnt T.** Identity prediction errors in human midbrain are computed based on abstract state representations. *Neuroscience 2018 (SfN), November 3-7, 2018, San Diego, CA, USA.*
- Wang F, Schoenbaum G, **Kahnt T.** Model-based inference involves interactions between orbitofrontal cortex and hippocampus. *Neuroscience 2018 (SfN), November 3-7, 2018, San Diego, CA, USA.*
- Howard JD, Reynolds R, Smith D, Voss J, Schoenbaum G, **Kahnt T.** Targeted stimulation of human orbitofrontal networks disrupts outcome-guided behavior. *Neuroscience 2018 (SfN), November 3-7, 2018, San Diego, CA, USA.*
- Howard JD, Reynolds R, Smith D, Voss JL, Schoenbaum G, **Kahnt T.** Targeted stimulation of human orbitofrontal networks disrupts odor reward-guided behavior. *41th Annual Meeting of the Association for Chemoreception Sciences (AChemS), April 14-17, 2019, Bonita Springs, FL, USA.*
- Sagar V, **Kahnt T.** Tuning of ensemble responses in the human olfactory cortex to features of odors. *41th Annual Meeting of the Association for Chemoreception Sciences (AChemS), April 14-17, 2019, Bonita Springs, FL, USA.*
- Cooper SL, Smith DE, Zhou G, Zelano C, Pestilli F, Parrish TB, **Kahnt T.** Toward an Olfactory Imaging Biomarker for Early-Stage Neurodegenerative Disease. *25th Annual Alzheimer Day, May 9, 2019, Chicago, IL, USA.*
- Shanahan LK, **Kahnt T.** Satiety alters sensitivity: effects of food intake on olfactory processing in humans. *Neuroscience 2019 (SfN), October 19-23, 2019, Chicago, IL, USA.*
- Tegelbeckers J, Schoenbaum G, **Kahnt T.** A Pavlovian over-expectation task to investigate behavior and learning based on imagined outcomes. *Neuroscience 2019 (SfN), October 19-23, 2019, Chicago, IL, USA.*
- Sagar V, **Kahnt T.** Tuning of Ensemble Responses in Human Olfactory Cortex. *Neuroscience 2019 (SfN), October 19-23, 2019, Chicago, IL, USA.*
- Cooper SL, Smith DE, Zhou G, Zelano C, Pestilli F, Parrish TB, **Kahnt T.** Mapping in vivo olfactory network connections in the human brain. *Neuroscience 2019 (SfN), October 19-23, 2019, Chicago, IL, USA.*
- Howard JD, Stalnaker TA, Schoenbaum G, **Kahnt T.** Midbrain fMRI ensemble patterns encode the identity of sensory prediction errors in humans. *Neuroscience 2019 (SfN), October 19-23, 2019, Chicago, IL, USA.*
- Tegelbeckers J, Schoenbaum G, **Kahnt T.** Behavior and learning based on imagined outcomes in a human Pavlovian over-expectation task recruits the orbitofrontal cortex. *4th Quadrennial Meeting on Orbitofrontal Cortex Function, November 13-15, 2019, Paris, France*
- Howard JD, Reynolds R, Smith D, Voss JL, Schoenbaum G, **Kahnt T.** Targeted stimulation of human orbitofrontal networks disrupts odor reward-guided behavior. *4th Quadrennial Meeting on Orbitofrontal Cortex Function, November 13-15, 2019, Paris, France*
- Echevarria-Cooper SL, Zhou G, Zelano C, Pestilli F, Parrish TB, **Kahnt T.** Mapping in vivo Olfactory Anatomical Connections in the Human Brain. *26th Annual Alzheimer Day, September 24, 2020, virtual meeting.*
- Shanahan LK, **Kahnt T.** Satiety decreases behavioral and neural sensitivity to meal-matched food odors in humans. *International Symposium on Olfaction and Taste (ISOT), August 3-7, 2020, virtual meeting.*
- Echevarria-Cooper SL, Zhou G, Zelano C, Pestilli F, Parrish TB, **Kahnt T.** Mapping in vivo Olfactory Anatomical Connections in the Human Brain. *International Symposium on Olfaction and Taste (ISOT), August 3-7, 2020, virtual Meeting.*

- Howard JD, Stalnaker TA, Schoenbaum G, **Kahnt T**. Decoding the identity of olfactory prediction errors in the human midbrain. *International Symposium on Olfaction and Taste (ISOT), August 3-7, 2020, virtual meeting*.
- Shanahan LK, Bhutani S, **Kahnt T**. Motivation biases olfactory decision-making through odor-specific and odor-general changes in neural signaling. *Cognitive Neuroscience Society (CNS) Annual Meeting, March 13-16, 2021, virtual meeting*.
- Tegelbeckers J, Porter D, Schoenbaum G, **Kahnt T**. The role of human orbitofrontal cortex in learning and behavior based on imagined outcomes. *Cognitive Neuroscience Society (CNS) Annual Meeting, March 13-16, 2021, virtual meeting*.
- Sagar V, **Kahnt T**. Contributions of chemical structure and perceptual quantity to odor encoding in the human brain. *Cognitive Neuroscience Society (CNS) Annual Meeting, March 13-16, 2021, virtual meeting*.
- Shanahan LK, Bhutani S, **Kahnt T**. How satiety modulates perceptual decision-making in olfactory circuits. *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 19-23, 2021, virtual meeting*.
- Echevarria-Cooper SL, Zhou G, Zelano C, Pestilli F, Parrish TB, **Kahnt T**. Mapping the Connectivity and Microstructure of the Human Lateral Olfactory Tracts with Diffusion MRI. *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 19-23, 2021, virtual meeting*.
- Sagar V, **Kahnt T**. Contributions of Chemical Structure and Perceptual Quality to Odor Encoding in the Human Brain. *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 19-23, 2021, virtual meeting*.
- Echevarria-Cooper SL, Zhou G, Zelano C, Pestilli F, Parrish TB, **Kahnt T**. Mapping the Connectivity and Microstructure of the Human Lateral Olfactory Tracts with Diffusion MRI. *Neuroscience 2021 (SfN), November 13-17, 2021, Chicago, IL, USA*.
- Sagar V, **Kahnt T**. Dimensionality of perceptual odor representations increases across central olfactory pathways. *Neuroscience 2021 (SfN), November 13-17, 2021, Chicago, IL, USA*.
- Howard JD, Edmunds DS, **Kahnt T**. Disentangling the content of sensory prediction errors in the human midbrain. *Neuroscience 2021 (SfN), November 13-17, 2021, Chicago, IL, USA*.
- Shanahan LK, Mithal LB, Otero S, Wakschlag L, Seed PC, Parish TB, **Kahnt T**. Investigating the physiological and neural correlates of olfaction in infants. *Neuroscience 2021 (SfN), November 13-17, 2021, Chicago, IL, USA*.
- Bhargava T, Echevarria-Cooper SL, **Kahnt T**. Exploring degeneration of olfactory brain regions in Alzheimer's disease and Parkinson's disease subjects. *Society for Neuroscience Chicago Chapter, March 4, 2022, Chicago, IL, USA*.
- Sagar V, Shanahan LK, Zelano CM, Gottfried JA, **Kahnt T**. High-precision mapping reveals the structure of odor coding in the human brain. *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 20-24, 2022, Bonita Springs, FL, USA*.
- Echevarria-Cooper SL, **Kahnt T**. Anatomical Parcellation of the Human Orbitofrontal Cortex using Diffusion Tractography. *Cognitive Neuroscience Society (CNS) Annual Meeting, April 22-26, 2022, San Francisco, CA, USA*.
- Liu Q, **Kahnt T**. Orbitofrontal network-targeted TMS disrupts midbrain signaling of identity prediction errors. *Society for Neuroeconomics Annual Meeting, September 30 - October 2, 2022, Arlington, VA, USA*.
- Sagar V, Shanahan LK, Zelano CM, Gottfried JA, **Kahnt T**. High-precision mapping reveals the structure of odor coding in the human brain. *Neuroscience 2022 (SfN), November 13-17, 2022, San Diego, CA, USA*.
- Liu Q, **Kahnt T**. Orbitofrontal network-targeted TMS disrupts midbrain signaling of identity prediction errors. *Neuroscience 2022 (SfN), November 13-17, 2022, San Diego, CA, USA*.
- Echevarria-Cooper SL, Ho EH, Gershon RC, Weintraub S, **Kahnt T**. Validation of the NIH Toolbox Odor Identification Test across Normal Cognition, Amnesic Mild Cognitive Impairment, and Dementia due to Alzheimer's Disease. *29th Annual Alzheimer Day, May 11, 2023, Chicago, IL, USA*.
- Zhao Y, Bhutani S, **Kahnt T**. Appetite-regulating hormones modulate odor perception and odor-evoked responses in hypothalamus and olfactory cortices. *11th Annual NIDA Poster Day, May 11, 2023, Baltimore, MD, USA*.

- Vaidya AR, Moussa N, Badre D, **Kahnt T**. Formation of an abstract task representation for inference of rewards: a behavioral pilot study. *11th Annual NIDA Poster Day, May 11, 2023, Baltimore, MD, USA*.
- Henein NJ, Shanahan LK, **Kahnt T**. Satiety attenuates connectivity between the hypothalamus and orbitofrontal cortex. *11th Annual NIDA Poster Day, May 11, 2023, Baltimore, MD, USA*.
- Liu Q, Zhao Y, Attanti S, Voss JL, Schoenbaum G, **Kahnt T**. Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *11th Annual NIDA Poster Day, May 11, 2023, Baltimore, MD, USA*.
- Moussa N*, Husami S*, Wang F, Tegelbeckers J, Lee A, Vertz J, Agage D, Taylor R, Liu Q, Vaidya A, Schoenbaum S, Epstein D, **Kahnt T**. Assessing inference-based behavior in opioid use disorder with a sensory preconditioning task. *11th Annual NIDA Poster Day, May 11, 2023, Baltimore, MD, USA*.
- Liu Q, Zhao Y, Attanti S, Voss JL, Schoenbaum G, **Kahnt T**. Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *2023 Interdisciplinary Symposium on Decision Neuroscience (ISDN), July 28-29, 2023, Philadelphia, PA, USA*.
- Vaidya AR, Moussa N, Badre D, **Kahnt T**. Formation of an abstract task representation for inference of rewards. *Neuroscience 2023 (SfN), November 11-15, 2023, Washington, DC, USA*.
- Liu Q, Zhao Y, Attanti S, Voss JL, Schoenbaum G, **Kahnt T**. Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *Neuroscience 2023 (SfN), November 11-15, 2023, Washington, DC, USA*.
- Zhao Y, Bhutani S, **Kahnt T**. Appetite-regulating hormones modulate odor perception and odor-evoked responses in hypothalamus and olfactory cortices. *Neuroscience 2023 (SfN), November 11-15, 2023, Washington, DC, USA*.
- Vaidya AR, Moussa N, Khan T, Badre D, **Kahnt T**. Neural networks supporting the formation and utilization of an abstract representation the task structure during generalization. *5th Quadrennial Meeting on Orbitofrontal Cortex Function, April 23-25, 2024, Paris, France*.
- Witkowski PP, Tirole M, Henien N, **Kahnt T**. Decoding the motives for goal-directed actions: Investigating the role of the orbitofrontal cortex. *5th Quadrennial Meeting on Orbitofrontal Cortex Function, April 23-25, 2024, Paris, France*.
- Liu Q, Zhao Y, Attanti S, Voss JL, Schoenbaum G, **Kahnt T**. Midbrain signaling of identity prediction errors depends on orbitofrontal cortex networks. *5th Quadrennial Meeting on Orbitofrontal Cortex Function, April 23-25, 2024, Paris, France*.
- Shanahan LK, Mithal LB, Otero S, Office E, Messina M, Seed PC, **Kahnt T**. Investigating the neural and physiological correlates of infant olfaction. *Neuroscience 2024 (SfN), October 05-09, 2024, Chicago, IL, USA*.
- Liu Q, Porter D, Damra H, Zhao Y, **Kahnt T**. Anterior and posterior lateral OFC networks make dissociable contributions to stimulus-outcome learning and goal-directed choice. *Neuroscience 2024 (SfN), October 05-09, 2024, Chicago, IL, USA*.
- Shanahan LK, Mithal LB, Otero S, Office E, Messina M, Seed PC, **Kahnt T**. Presenting odors to sleeping infants during MRI. *International Sleep Replay Workshop (ISRW), December 05, 2024, Virtual*.
- Shanahan LK, Mithal LB, Otero S, Office E, Messina M, Seed PC, **Kahnt T**. Characterizing olfactory brain responses in young infants. *Association for Chemoreception Sciences (AChemS) Annual Meeting, April 23-26, 2025, Bonita Springs, FL, USA*.