A neural circuit architecture for angular integration in I

Nature 546, 101-106 DOI: 10.1038/nature22343

Citation Report

#	Article	IF	CITATIONS
1	An angle on navigation. Nature Reviews Neuroscience, 2017, 18, 387-387.	4.9	0
2	Neural Coding: Bumps on the Move. Current Biology, 2017, 27, R409-R412.	1.8	12
3	Spatial representation in the hippocampal formation: a history. Nature Neuroscience, 2017, 20, 1448-1464.	7.1	362
4	Neural Circuitry for Target Selection and Action Selection in Animal Behavior. Integrative and Comparative Biology, 2017, 57, 808-819.	0.9	11
5	Path Integration: Combining Optic Flow with CompassÂOrientation. Current Biology, 2017, 27, R1113-R1116.	1.8	10
6	An Anatomically Constrained Model for Path Integration in the Bee Brain. Current Biology, 2017, 27, 3069-3085.e11.	1.8	290
7	Unraveling the neural basis of insect navigation. Current Opinion in Insect Science, 2017, 24, 58-67.	2.2	113
8	Quantifying behavior to solve sensorimotor transformations: advances from worms and flies. Current Opinion in Neurobiology, 2017, 46, 90-98.	2.0	38
9	Idiothetic Path Integration in the Fruit Fly Drosophila melanogaster. Current Biology, 2017, 27, 2227-2238.e3.	1.8	120
10	Insect Navigation: How Flies Keep Track of Their Snack. Current Biology, 2017, 27, R748-R750.	1.8	8
11	Vision for navigation: What can we learn from ants?. Arthropod Structure and Development, 2017, 46, 718-722.	0.8	30
12	The evolution of honey bee dance communication: a mechanistic perspective. Journal of Experimental Biology, 2017, 220, 4339-4346.	0.8	41
13	In silico Interrogation of Insect Central Complex Suggests Computational Roles for the Ellipsoid Body in Spatial Navigation. Frontiers in Behavioral Neuroscience, 2017, 11, 142.	1.0	14
14	Neural coding in the visual system of Drosophila melanogaster: How do small neural populations support visually guided behaviours?. PLoS Computational Biology, 2017, 13, e1005735.	1.5	15
15	Elucidating Neuronal Mechanisms Using Intracellular Recordings during Behavior. Trends in Neurosciences, 2018, 41, 385-403.	4.2	16
16	Functional Imaging and Optogenetics in <i>Drosophila</i> . Genetics, 2018, 208, 1291-1309.	1.2	94
17	The Brain Compass: A Perspective on How Self-Motion Updates the Head Direction Cell Attractor. Neuron, 2018, 97, 275-289.	3.8	54
18	Recurrent Circuitry for Balancing Sleep Need and Sleep. Neuron, 2018, 97, 378-389.e4.	3.8	172

ATION REDO

#	Article	IF	CITATIONS
19	Biological Investigation of Neural Circuits in the Insect Brain. SpringerBriefs in Applied Sciences and Technology, 2018, , 1-20.	0.2	1
20	Neuroarchitecture of the <i>Drosophila</i> central complex: A catalog of nodulus and asymmetrical body neurons and a revision of the protocerebral bridge catalog. Journal of Comparative Neurology, 2018, 526, 2585-2611.	0.9	120
21	Transfer of Spatial Contact Information Among Limbs and the Notion of Peripersonal Space in Insects. Frontiers in Computational Neuroscience, 2018, 12, 101.	1.2	13
22	Neuronal Constituents and Putative Interactions Within the Drosophila Ellipsoid Body Neuropil. Frontiers in Neural Circuits, 2018, 12, 103.	1.4	63
23	Search and return model for stochastic path integrators. Chaos, 2018, 28, 106302.	1.0	5
24	Principles of Insect Path Integration. Current Biology, 2018, 28, R1043-R1058.	1.8	145
25	Insect Orientation: Stay on Course with the Sun. Current Biology, 2018, 28, R933-R936.	1.8	5
26	Sun Navigation Requires Compass Neurons in Drosophila. Current Biology, 2018, 28, 2845-2852.e4.	1.8	133
27	The physics of cooperative transport in groups of ants. Nature Physics, 2018, 14, 683-693.	6.5	113
28	Self-Organized Attractor Dynamics in the Developing Head Direction Circuit. Current Biology, 2018, 28, 609-615.e3.	1.8	36
29	Simulation of the Arthropod Central Complex: Moving Towards Bioinspired Robotic Navigation Control. Lecture Notes in Computer Science, 2018, , 370-381.	1.0	1
30	Building a heading signal from anatomically defined neuron types in the Drosophila central complex. Current Opinion in Neurobiology, 2018, 52, 156-164.	2.0	51
31	Neuroarchitecture of the dung beetle central complex. Journal of Comparative Neurology, 2018, 526, 2612-2630.	0.9	47
32	Optimal noise in a stochastic model for local search. Physical Review E, 2018, 98, 022128.	0.8	7
33	The intrinsic attractor manifold and population dynamics of a canonical cognitive circuit across waking and sleep. Nature Neuroscience, 2019, 22, 1512-1520.	7.1	214
34	Learning a Spatial Task by Trial and Error in Drosophila. Current Biology, 2019, 29, 2517-2525.e5.	1.8	15
35	A neural heading estimate is compared with an internal goal to guide oriented navigation. Nature Neuroscience, 2019, 22, 1460-1468.	7.1	91
36	From skylight input to behavioural output: A computational model of the insect polarised light compass. PLoS Computational Biology, 2019, 15, e1007123.	1.5	30

ARTICLE IF CITATIONS # Distinct Dopamine Receptor Pathways Underlie the Temporal Sensitivity of Associative Learning. Cell, 37 13.5 176 2019, 178, 60-75.e19. Mechanisms of vision in the fruit fly. Current Opinion in Insect Science, 2019, 36, 25-32. 2.2 39 Using slow frame rate imaging to extract fast receptive fields. Nature Communications, 2019, 10, 4979. 5.8 10 Analysis of aligning active local searchers orbiting around their common home position. Physical 0.8 Reviéw E, 2019, 100, 032125. Semaphorin 2b Regulates Sleep-Circuit Formation in the Drosophila Central Brain. Neuron, 2019, 104, 41 3.8 14 322-337.e14. Inverse Control of Turning Behavior by Dopamine D1 Receptor Signaling in Columnar and Ring Neurons of the Central Complex in Drosophila. Current Biology, 2019, 29, 567-577.e6. 1.8 High-performance calcium sensors for imaging activity in neuronal populations and 43 9.0 843 microcompartments. Nature Methods, 2019, 16, 649-657. Path integration: how details of the honeybee waggle dance and the foraging strategies of desert 44 0.8 ants might help in understanding its mechanisms. Journal of Experimental Biology, 2019, 222, . Non-Hermitian quasilocalization and ring attractor neural networks. Physical Review E, 2019, 99, 45 0.8 12 062406. Recent Advances in the Genetic Dissection of Neural Circuits in Drosophila. Neuroscience Bulletin, 1.5 2019, 35, 1058-1072. A DNAzyme-powered cross-catalytic circuit for amplified intracellular imaging. Chemical 47 2.2 49 Communications, 2019, 55, 6519-6522. Diverse Food-Sensing Neurons Trigger Idiothetic Local Search in Drosophila. Current Biology, 2019, 1.8 29, 1660-1668.e4. Automated real-time quantification of group locomotor activity in Drosophila melanogaster. 49 1.6 30 Scientific Reports, 2019, 9, 4427. Representation of Haltere Oscillations and Integration with Visual Inputs in the Fly Central Complex. Journal of Neuroscience, 2019, 39, 4100-4112. 1.7 Three brain states in the hippocampus and cortex. Hippocampus, 2019, 29, 184-238. 51 0.9 49 Two Compasses in the Central Complex of the Locust Brain. Journal of Neuroscience, 2019, 39, 3070-3080. Origin and role of path integration in the cognitive representations of the hippocampus: 53 0.8 59 computational insights into open questions. Journal of Experimental Biology, 2019, 222, . 54 The brain behind straight-line orientation in dung beetles. Journal of Experimental Biology, 2019, 222, . 38

#	Article	IF	CITATIONS
55	The insect central complex and the neural basis of navigational strategies. Journal of Experimental Biology, 2019, 222, .	0.8	141
56	Sensorimotor experience remaps visual input to a heading-direction network. Nature, 2019, 576, 121-125.	13.7	137
57	Generation of stable heading representations in diverse visual scenes. Nature, 2019, 576, 126-131.	13.7	127
58	Extended Flight Bouts Require Disinhibition from GABAergic Mushroom Body Neurons. Current Biology, 2019, 29, 283-293.e5.	1.8	19
59	Developmentally Arrested Precursors of Pontine Neurons Establish an Embryonic Blueprint of the Drosophila Central Complex. Current Biology, 2019, 29, 412-425.e3.	1.8	23
60	Learning and processing of navigational cues in the desert ant. Current Opinion in Neurobiology, 2019, 54, 140-145.	2.0	9
61	How the Internally Organized Direction Sense Is Used to Navigate. Neuron, 2019, 101, 285-293.e5.	3.8	18
62	Studying complex brain dynamics using <i>Drosophila</i> . Journal of Neurogenetics, 2020, 34, 171-177.	0.6	4
63	The head direction cell network: attractor dynamics, integration within the navigation system, and three-dimensional properties. Current Opinion in Neurobiology, 2020, 60, 136-144.	2.0	22
64	A dynamical model exploring sensory integration in the insect central complex substructures. Bioinspiration and Biomimetics, 2020, 15, 026003.	1.5	5
65	Multisensory control of navigation in the fruit fly. Current Opinion in Neurobiology, 2020, 64, 10-16.	2.0	19
66	Mechanisms Underlying the Neural Computation of Head Direction. Annual Review of Neuroscience, 2020, 43, 31-54.	5.0	76
67	Matched-filter coding of sky polarization results in an internal sun compass in the brain of the desert locust. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 25810-25817.	3.3	37
68	Using virtual worlds to understand insect navigation for bio-inspired systems. Current Opinion in Insect Science, 2020, 42, 97-104.	2.2	4
69	Experience- and Context-Dependent Modulation of the Invertebrate Compass System. Neuron, 2020, 106, 9-11.	3.8	12
70	Two Brain Pathways Initiate Distinct Forward Walking Programs in Drosophila. Neuron, 2020, 108, 469-485.e8.	3.8	68
71	A Neural Network for Wind-Guided Compass Navigation. Neuron, 2020, 107, 924-940.e18.	3.8	87
72	Parallel Visual Pathways with Topographic versus Nontopographic Organization Connect the Drosophila Eves to the Central Brain. IScience, 2020, 23, 101590.	1.9	18

#	Article	IF	CITATIONS
73	NOSA, an Analytical Toolbox for Multicellular Optical Electrophysiology. Frontiers in Neuroscience, 2020, 14, 712.	1.4	4
74	Towards a multi-level understanding in insect navigation. Current Opinion in Insect Science, 2020, 42, 110-117.	2.2	6
75	The Neuroanatomical Ultrastructure and Function of a Biological Ring Attractor. Neuron, 2020, 108, 145-163.e10.	3.8	92
76	Multi-regional circuits underlying visually guided decision-making in Drosophila. Current Opinion in Neurobiology, 2020, 65, 77-87.	2.0	22
77	The Synergy Between Neuroscience and Control Theory: The Nervous System as Inspiration for Hard Control Challenges. Annual Review of Control, Robotics, and Autonomous Systems, 2020, 3, 243-267.	7.5	27
79	On the Role of the Head Ganglia in Posture and Walking in Insects. Frontiers in Physiology, 2020, 11, 135.	1.3	23
80	An On-chip Spiking Neural Network for Estimation of the Head Pose of the iCub Robot. Frontiers in Neuroscience, 2020, 14, 551.	1.4	17
81	The brain of a nocturnal migratory insect, the Australian Bogong moth. Journal of Comparative Neurology, 2020, 528, 1942-1963.	0.9	31
82	Multiple head direction signals within entorhinal cortex: origin and function. Current Opinion in Neurobiology, 2020, 64, 32-40.	2.0	10
83	A Multi-regional Network Encoding Heading and Steering Maneuvers in Drosophila. Neuron, 2020, 106, 126-141.e5.	3.8	38
84	Decentralized control of insect walking:ÂAÂsimple neural network explains a wide range of behavioral and neurophysiological results. PLoS Computational Biology, 2020, 16, e1007804.	1.5	59
85	Neuroarchitecture of the central complex in the brain of the honeybee: Neuronal cell types. Journal of Comparative Neurology, 2021, 529, 159-186.	0.9	21
86	The role of cell lineage in the development of neuronal circuitry and function. Developmental Biology, 2021, 475, 165-180.	0.9	8
87	Orcokinin in the central complex of the locust <i>Schistocerca gregaria</i> : Identification of immunostained neurons and colocalization with other neuroactive substances. Journal of Comparative Neurology, 2021, 529, 1876-1894.	0.9	8
88	Reverse Engineering and Robotics as Tools for Analyzing Neural Circuits. Frontiers in Neurorobotics, 2020, 14, 578803.	1.6	1
91	Visuo-Motor Feedback Modulates Neural Activities in the Medulla of the Honeybee, <i>Apis mellifera</i> . Journal of Neuroscience, 2021, 41, 3192-3203.	1.7	9
92	A visual pathway for skylight polarization processing in Drosophila. ELife, 2021, 10, .	2.8	72
97	Towards a common terminology for arthropod spatial orientation. Ethology Ecology and Evolution, 2021, 33, 338-358.	0.6	14

	Сітатіої	CITATION REPORT	
#	Article	IF	CITATIONS
98	Decoding locomotion from population neural activity in moving C. elegans. ELife, 2021, 10, .	2.8	48
100	Sexual arousal gates visual processing during Drosophila courtship. Nature, 2021, 595, 549-553.	13.7	70
102	Coordination through Inhibition: Control of Stabilizing and Updating Circuits in Spatial Orientation Working Memory. ENeuro, 2021, 8, ENEURO.0537-20.2021.	0.9	1
103	The routes of one-eyed ants suggest a revised model of normal route following. Journal of Experimental Biology, 2021, 224, .	0.8	6
105	Drosophila re-zero their path integrator at the center of a fictive food patch. Current Biology, 2021, 31, 4534-4546.e5.	1.8	17
106	Chronic social isolation signals starvation and reduces sleep in Drosophila. Nature, 2021, 597, 239-244.	13.7	44
108	A projectome of the bumblebee central complex. ELife, 2021, 10, .	2.8	36
111	Parallel encoding of recent visual experience and self-motion during navigation in Drosophila. Nature Neuroscience, 2017, 20, 1395-1403.	7.1	67
137	Path integration in large-scale space and with novel geometries: Comparing vector addition and encoding-error models. PLoS Computational Biology, 2020, 16, e1007489.	1.5	22
138	Angular velocity integration in a fly heading circuit. ELife, 2017, 6, .	2.8	252
139	The laminar organization of the Drosophila ellipsoid body is semaphorin-dependent and prevents the formation of ectopic synaptic connections. ELife, 2017, 6, .	2.8	53
140	Building a functional connectome of the Drosophila central complex. ELife, 2018, 7, .	2.8	112
141	Statistical structure of locomotion and its modulation by odors. ELife, 2019, 8, .	2.8	40
142	Temporal identity establishes columnar neuron morphology, connectivity, and function in a Drosophila navigation circuit. ELife, 2019, 8, .	2.8	38
143	Velocity coupling of grid cell modules enables stable embedding of a low dimensional variable in a high dimensional neural attractor. ELife, 2019, 8, .	2.8	19
144	The head direction circuit of two insect species. ELife, 2020, 9, .	2.8	50
145	A decentralised neural model explaining optimal integration of navigational strategies in insects. ELife, 2020, 9, .	2.8	60
146	A connectome and analysis of the adult Drosophila central brain. ELife, 2020, 9, .	2.8	596

#	Article	IF	CITATIONS
147	Encoding and control of orientation to airflow by a set of Drosophila fan-shaped body neurons. ELife, 2020, 9, .	2.8	43
148	The structure of behavioral variation within a genotype. ELife, 2021, 10, .	2.8	30
149	Context-dependent representations of movement in Drosophila dopaminergic reinforcement pathways. Nature Neuroscience, 2021, 24, 1555-1566.	7.1	54
150	A connectome of the Drosophila central complex reveals network motifs suitable for flexible navigation and context-dependent action selection. ELife, 2021, 10, .	2.8	168
151	Plasticity between visual input pathways and the head direction system. Current Opinion in Neurobiology, 2021, 71, 60-68.	2.0	3
154	Extended Flight Bouts Require Disinhibition from GABAergic Mushroom Body Neurons. SSRN Electronic Journal, 0, , .	0.4	0
173	Brain Premotor Centers for Pheromone Orientation Behavior. Entomology Monographs, 2020, , 243-264.	0.6	1
174	Visual Processing in Free Flight. , 2020, , 1-23.		0
177	Multisensory coding of angular head velocity in the retrosplenial cortex. Neuron, 2022, 110, 532-543.e9.	3.8	32
178	Flight-induced compass representation in the monarch butterfly heading network. Current Biology, 2022, 32, 338-349.e5.	1.8	42
180	Toroidal topology of population activity in grid cells. Nature, 2022, 602, 123-128.	13.7	152
182	Receptive field structures for two celestial compass cues at the input stage of the central complex in the locust brain. Journal of Experimental Biology, 2022, , .	0.8	6
183	Functional network topography of the medial entorhinal cortex. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, .	3.3	31
184	Building an allocentric travelling direction signal via vector computation. Nature, 2022, 601, 92-97.	13.7	92
185	Transforming representations of movement from body- to world-centric space. Nature, 2022, 601, 98-104.	13.7	71
187	Online learning for orientation estimation during translation in an insect ring attractor network. Scientific Reports, 2022, 12, 3210.	1.6	4
193	Flexible navigational computations in the Drosophila central complex. Current Opinion in Neurobiology, 2022, 73, 102514.	2.0	30
195	How the insect central complex could coordinate multimodal navigation. ELife, 2021, 10, .	2.8	14

#	Article	IF	CITATIONS
197	A Nonlinear Observability Analysis of Ambient Wind Estimation with Uncalibrated Sensors, Inspired by Insect Neural Encoding. , 2021, , .		6
198	Dopamine Modulation of Drosophila Ellipsoid Body Neurons, a Nod to the Mammalian Basal Ganglia. Frontiers in Physiology, 2022, 13, 849142.	1.3	4
212	Context dependent effects on attack and defense behaviors in the praying mantis <i>Tenodera sinensis</i> . Journal of Experimental Biology, 2022, , .	0.8	2
213	From Photons to Behaviors: Neural Implementations of Visual Behaviors in Drosophila. Frontiers in Neuroscience, 2022, 16, .	1.4	10
214	A threeâ€dimensional atlas of the honeybee central complex, associated neuropils and peptidergic layers of the central body. Journal of Comparative Neurology, 2022, 530, 2416-2438.	0.9	6
217	The Role of Central Complex Neurons in Prey Detection and Tracking in the Freely Moving Praying Mantis (Tenodera sinensis). Frontiers in Neural Circuits, 0, 16, .	1.4	6
218	Learning accurate path integration in ring attractor models of the head direction system. ELife, 0, 11, .	2.8	7
219	Myoinhibitory peptides in the central complex of the locust <i>Schistocerca gregaria</i> and colocalization with locustatachykininâ€related peptides. Journal of Comparative Neurology, 2022, 530, 2782-2801.	0.9	4
220	Visual Processing in Free Flight. , 2022, , 3581-3603.		0
221	Weighting of Celestial and Terrestrial Cues in the Monarch Butterfly Central Complex. Frontiers in Neural Circuits, 0, 16, .	1.4	7
222	Firing patterns in a fractional-order FithzHugh–Nagumo neuron model. Nonlinear Dynamics, 2022, 110, 1807-1822.	2.7	15
224	Continuous State Estimation With Synapse-constrained Connectivity. , 2022, , .		2
225	Active anemosensing hypothesis: how flying insects could estimate ambient wind direction through sensory integration and active movement. Journal of the Royal Society Interface, 2022, 19, .	1.5	9
226	Connectomics and the neural basis of behaviour. Current Opinion in Insect Science, 2022, 54, 100968.	2.2	17
227	The neuronal building blocks of the navigational toolkit in the central complex of insects. Current Opinion in Insect Science, 2023, 55, 100972.	2.2	9
228	A Neural Model for Insect Steering Applied to Olfaction and Path Integration. Neural Computation, 2022, 34, 2205-2231.	1.3	7
229	Physiological Signatures of Changes in Honeybee's Central Complex During Wing Flapping. Journal of Insect Science, 2022, 22, .	0.6	1
230	Multiple bumps can enhance robustness to noise in continuous attractor networks. PLoS Computational Biology, 2022, 18, e1010547.	1.5	2

		PORT	
#	Article	IF	CITATIONS
231	Muscles that move the retina augment compound eye vision in Drosophila. Nature, 2022, 612, 116-122.	13.7	27
232	Sleep need-dependent changes in functional connectivity facilitate transmission of homeostatic sleep drive. Current Biology, 2022, 32, 4957-4966.e5.	1.8	4
233	Attractor and integrator networks in the brain. Nature Reviews Neuroscience, 2022, 23, 744-766.	4.9	66
237	Dopamine promotes head direction plasticity during orienting movements. Nature, 2022, 612, 316-322.	13.7	22
238	Towards a unified vision on animal navigation. European Journal of Neuroscience, 2023, 57, 1980-1997.	1.2	3
239	The sky compass network in the brain of the desert locust. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2023, 209, 641-662.	0.7	10
240	A brainstem integrator for self-location memory and positional homeostasis in zebrafish. Cell, 2022, 185, 5011-5027.e20.	13.5	16
241	Emergent behaviour and neural dynamics in artificial agents tracking odour plumes. Nature Machine Intelligence, 2023, 5, 58-70.	8.3	10
242	Olfactory navigation in arthropods. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2023, 209, 467-488.	0.7	9
243	Optimal and Adaptive Stimulation Design. , 2023, , 1993-2056.		0
247	Global inhibition in head-direction neural circuits: a systematic comparison between connectome-based spiking neural circuit models. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2023, 209, 721-735.	0.7	3
248	Cerebellar control of a unitary head direction sense. Proceedings of the National Academy of Sciences of the United States of America, 2023, 120, .	3.3	5
249	Bayesian inference in ring attractor networks. Proceedings of the National Academy of Sciences of the United States of America, 2023, 120, .	3.3	8
250	A virtuous cycle between invertebrate and robotics research: perspective on a decade of Living Machines research. Bioinspiration and Biomimetics, 2023, 18, 035005.	1.5	3
252	Lineages to circuits: the developmental and evolutionary architecture of information channels into the central complex. Journal of Comparative Physiology A: Neuroethology, Sensory, Neural, and Behavioral Physiology, 2023, 209, 679-720.	0.7	9
253	A unifying perspective on neural manifolds and circuits for cognition. Nature Reviews Neuroscience, 2023, 24, 363-377.	4.9	31