**Curriculum Vitae: Jonathan R. Whitlock**

**Affiliation:** *Kavli Institute for Systems Neuroscience* and *Centre for Neural Computation,* Norwegian University of Science and Technology (NTNU), Trondheim, Norway

**Position:** Associate professor (2019–present)

**Past positions:** Group Leader, Kavli Institute for Systems Neuroscience (KISN), NTNU (2014–2018); Research associate (2011-2013) and Kavli postdoctoral fellow (2007–2011) KISN; Post-doc, Massachusetts Institute of Technology (2006–2007); Fulbright scholar, Max Planck Institute for Cognitive Neuroscience, Leipzig, Germany (1999–2000).

**Education: Ph.D. in Neuroscience**, Brown University, Providence, USA (2006); **B.A. in Biology,** *cum laude*,with distinction, Hendrix College, Conway, USA (1999).

**Lab website**: https://www.whitlocklab.org

**RESEARCH INTERESTS**

My group formed in 2014 under the auspices of an ERC starting grant, focusing on the cellular substrates of action planning and action perception in posterior parietal cortex (PPC) and frontal motor areas. The goals of my research are to understand cognitive motor functions and social cognition at the cellular and systems levels using rodents as model species. Areas of active investigation include (i) how neocortex represents unrestrained movement in 3D, (ii) how neocortex integrates posture with sensation, and (iii) cortical mechanisms of social learning.

**FUNDING / AWARDS**

2019 FRIPRO Independent Investigator Grant, Research Council of Norway (1.2M €)

2018, 19 **Marie Sklodowska-Curie Actions Seal of Excellence (as supervisor to applicant)**

2015 – 2018 FRIPRO Young Research Talents Grant, Research Council of Norway (0.8M €)

2014 – 2018 ERC Starting Grant (1.5M €)

2007 Outstanding Young Alumnus Award, Hendrix College, Conway, AR, USA

2006 *Science* Magazine Top 10 Breakthroughs of 2006

2000-2002 Graduate Fellowship, Brown University, Providence, RI, USA

1999-2000 Fulbright Scholarship, U.S. Department of State

1999 Departmental Honors, Biology Dept., Hendrix College, Conway, AR, USA

1998 1st Place Undergraduate Research Presentation, AR Academy of Science, USA

1998 Summer Undergraduate Research Fellowship, U.T. Southwestern Medical Center, Dallas, TX, USA

**TEACHING EXPERIENCE**

2019—present Lecturer (recurring) on Parietal Cortical Function, Brain Circuits Course, Karolinska Institute, Stockholm, Sweden

2016 – present Course coordinator, Physiological Psychology and Cognitive Neuroscience, NEVR 8010 (PhD level), NEVR 3040/50 (master’s), NTNU, Trondheim, Norway

2017 Kavli Institute Summer School, Norwegian Research School of Neuroscience (NRSN), Trondheim, Norway

2015 Lecturer, Transylvanian Experimental Neuroscience Summer School (TENSS), Pike Lake, Romania

2012 – 2017 Lecturer (recurring) on Parietal Cortical Function in the Mammalian Brain,

Advanced Neurobiology Course, University of Oslo, Norway

2007 – 2019 Lecturer (recurring) on Synaptic Plasticity and Memory, NEVR 3003, NTNU, Trondheim, Norway

2002 Teaching Fellow, Neuropharmacology (course BN167), Brown University,

Providence, RI, USA

2002 Teaching Fellow, Principles of Neurobiology (course BN102), Brown University, Brown University, Providence, RI, USA

**COMMISSION OF TRUST**

Organizational Roles:

* **Co-organizer**, Kavli Institutes in Neuroscience Forum, Yale University, New Haven, USA, April 2021.
* **Session co-organizer & chair**, “Brain mechanisms controlling motor behavior & cognition”, National Symposium, Norwegian Research School in Neuroscience, Olso, Norway, February 2021.
* **Organizer**, “The Generative Brain” symposium, Kavli Institute for Systems Neuroscience, Trondheim, Norway, December 2019.
* **Scientific director, Master’s program in Neuroscience**, Kavli Institute for Systems Neuroscience, NTNU, Trondheim, Norway, 2019 - present.
* **Admissions director, PhD program in Neuroscience**, Kavli Institute for Systems Neuroscience, NTNU, Trondheim, Norway, 2017 - 2019.
* **Scientific coordinator**, Summer School for Norwegian Research School of Neuroscience (NRSN) Trondheim, Norway, August 2017.
* **Session organizer & chair**, “From Sensation to Action in Cortex”, Nordic Neuroscience Meeting, Stockholm, Sweden, June 2017.
* **Co-organizer**, Workshop on PhD Mentorship, NRSN, Trondheim, Norway, October 2015.
* **Co-organizer**, Nansen Neuroscience Network Memory Symposium, Trondheim, Norway, October, 2014.
* **Session organizer & chair**, “Reaching out to Cortex: Hippocampal-cortical Interactions in Navigation and Memory”, Spring Hippocampal Research Conference, Verona, Italy, June 2009.

Critical Assessment:

* Review Committee, Human Frontiers Science Program (**HFSP**), 2020-2023
* Reviewer, Organization for Computational Neuroscience (**CNS**) Meeting,2018-20
* NIH BRAIN Initiative & Lundbeck Foundation, 2018
* Canada First Research Excellence Fund (**CFREF**), 2015-16
* Medical Research Council (**MRC**), 2015
* French National Research Agency / l’Agence Nationale de la Recherche (**ANR**), 2014
* NTNU Medical Thesis Committee, Dept. of Medicine, 2014
* PhD thesis committee chair, NTNU Graduate program in Neuroscience (recurring) 2015-20
* Master’s thesis internal examiner, NTNU, Graduate program in Neuroscience (recurring) 2018-20
* PhD midterm eval. committee, NTNU Graduate program in Neuroscience (recurring) 2015-20

Peer Review:

Science, Nature, Cell, Neuron, Nat. Neurosci., Nat. Methods, Trends in Neurosci., Current Biology, PNAS, Prog. in Neurobiology, PLOS Biology, Cell Reports, Cerebral Cortex, J. Neurosci., J. Neurosci. Methods, Hippocampus, iScience, Front. Behav. Neurosci., PLOS One, JoVE, Brain Behavior and Evolution

**MEMBERSHIPS / SOCIETIES**

Norwegian Neuroscience Society / FENS

Nansen Neuroscience Network

Society for Neuroscience

American Association for the Advancement of Science

**PUBLICATIONS**

Google Scholar Citations **2689**, *h*-index 11 (January 2021).

1. Gheorghiu M, Ciuparu A, Mimica B, **Whitlock JR**, Muresan RC. (2020) A machine learning approach to

investigate fronto-parietal neural ensemble dynamics during complex behavior*.* ***IEEE***

***International Conference on Automation, Quality and Testing, Robotics****,* 2020: 1-6.

2. Tombaz T, Dunn BA, Hovde K, Cubero RJ, Mimica B, Mamidanna P, Roudi Y, **Whitlock JR**. (2020)

Action representation in the mouse parieto-frontal network. ***Scientific Reports***, 10: 5559.

3. Olsen GM, Hovde K, Kondo H, Sakshaug T, Sømme HH, **Whitlock JR**, Witter MP (2019) Organization

of posterior parietal-prontal connections in the rat. ***Front. Systems Neuroscience***, doi:

10.3389/fnsys.2019.00038.

4. Mimica B, Dunn BA, Tombaz T, Bojja VPTNCS, **Whitlock JR**. (2018) Efficient cortical coding of 3D

posture in freely behaving rats. ***Science***, 362:584-589.

5. Hovde K, Gianatti M, Witter MP, **Whitlock JR**. (2018) Architecture and organization of mouse

posterior parietal cortex relative to extrastriate areas. ***European J. Neuroscience***, doi: 10.1111/ejn.14280. *(****‘Top downloaded papers’ 2018-19 EJN****)*

6. **Whitlock JR**. (2017) Movement coding at the mesoscale in posterior parietal cortex. (commentary)

***Neuron***, 95:1234-1236.

7. **Whitlock JR**. (2017) Posterior parietal cortex. ***Current Biology***, 27:R691-R695.

8. **Whitlock JR**. (2014) Navigating actions through the rodent parietal cortex. ***Front. Human Neurosci.***,

8:293.

9. **Whitlock JR**, Derdikman D. (2012) Head direction maps remain stable despite grid map

fragmentation. ***Front. Neural Circuits***, 6:9.

10. **Whitlock JR**, Pfuhl G, Dagslott N, Moser MB, Moser EI. (2012) Functional split between

parietal and entorhinal cortices in the rat. ***Neuron*,** 73: 789-802.

11. Derdikman D, **Whitlock JR**, Tsao A, Fyhn M, Hafting T, Moser MB, Moser EI. (2009)

Fragmentation of grid cell maps in a multicompartment environment. ***Nature Neurosci****.*,

12:1325-1332. (***F1000 rated ‘Exceptional’***)

12. **Whitlock JR**, Moser EI. (2009) Synaptic plasticity and spatial representations in the

hippocampus. ***The Cognitive Neurosciences***, 4th Edition, Michael S. Gazzaniga, editor. The

MIT Press.

13. Wiig KA, **Whitlock JR**, Epstein MH, Carpenter RL, Bear MF. (2009) The levo enantiomer of

amphetamine increases memory consolidation and gene expression in the hippocampus

without producing locomotor stimulation. ***Neurobiol. Learn. Mem****.* 92: 106-113.

14. **Whitlock JR**, Sutherland RJ, Witter MP, Moser MB, Moser EI. (2008) Navigating from

hippocampus to parietal cortex. ***Proc. Nat. Acad. Sci. USA***, 105: 14755-14762.

15. **Whitlock JR**, Heynen AJ, Shuler MG, Bear MF. (2006) Learning induces long-term potentiation

in the hippocampus. ***Science***313: 1093-1097. (***Top 10 breakthroughs of 2006***, ***F1000 rated ‘Exceptional’*)**

16. Jennings ML, **Whitlock J**, Shinde A. (1998) Pre-steady state transport by erythrocyte band 3

protein: uphill countertransport induced by the impermeant inhibitor H2DIDS. ***Biochem. Cell Biol****.* 76: 807-813

**STUDENT & POST-DOC SUPERVISION**

**2021** Post-doc Loredana Stoica, KISN, NTNU, Trondheim, Norway

PhD Student Pearl Saldanha, KISN, NTNU, Trondheim, Norway

**2020** Post-doc Jerneja Rudolf, KISN, NTNU, Trondheim, Norway

Post-doc Jingyi Guo Fuglstad, KISN, NTNU, Trondheim, Norway

**2019** Master’s Student Devika Kurup, KISN, NTNU, Trondheim, Norway

Master’s Student Ella Holt Holmberg, KISN, NTNU, Trondheim, Norway

PhD advisory committee Annette Loidolt, Max Planck Institute of Neurobiology, Munich, Germany

**2018** PhD Student Ida Rautio, KISN, NTNU, Trondheim, Norway

Master’s Student Andrea Hegstad, KISN, NTNU, Trondheim, Norway

Master’s Student Ece Demirci, KISN, NTNU, Trondheim, Norway

**2017** Master’s Student (co-supervisor) Pranav Mamidanna, depts. Mathematics, Neuroscience, NTNU, Norway *(now PhD candidate., Aalborg Univ., Denmark)*

**2016** Master’s Student Naomi Hanemaaijer, Free Univ. Amsterdam, Amsterdam, The Netherlands *(now PhD student at Free Univ. Amsterdam)*

PhD Student Karoline Hovde, KISN, NTNU, Trondheim, Norway *(now administrative coordinator, Norwegian Research School in Neuroscience)*

Visiting Student Matthew Czarnecki, Yale University, CT, USA. *(founder and CEO of Verb Energy, USA)*

**2015** Master’s Student Thijs Van Lierde, KISN, NTNU, Trondheim, Norway.

Visiting Student Dominika Chodkowska, Nencki Institute, Warsaw, Poland.

Master’s Student (co-supervisor) Mikkel Antonsen, dept. Computer Science, NTNU, Trondheim, Norway *(now at Telenor Corp.)*

Post-doc Benjamin Dunn, dept. Neuroscience, NTNU, Trondheim, Norway *(now Assoc.*

*Prof. at NTNU, dept. Mathematics)*

**2014** PhD Student Tuce Tombaz, KISN, NTNU, Trondheim, Norway

PhD Student Bartul Mimica, KISN, NTNU, Trondheim, Norway *(now post-doc, Princeton University, New Jersey, USA)*

**2012** Masters Student Tadiwos Feyissa, KISN, NTNU, Trondheim, Norway *(now PhD student University of Bergen, Norway)*

**INVITED LECTURES: SCIENTIFIC**

**2021** 18.November, **Course on Behavioral Analysis of Rodents**, Karolinska Institute, Stockholm, Sweden.

29.June, **National Symposium of Norwegian Research School in Neuroscience**, Nordeski, Oslo, Norway.

**2020** 16.September, **Brain Circuits Course**, Nobel Institute for Neurophysiology, Karolinska

Institute, Stockholm, Sweden.

09.June, **Inscopix European Neural Circuits Webinar**, online.

29.May *(postponed)*, **Invited lecture**, Lund University, Lund, Sweden.

**2019** 17.September, **Inscopix Users’ Meeting**, College de France, Paris, France.

16.September, **Brain Circuits Course**, Nobel Institute for Neurophysiology, Karolinska

Institute, Stockholm, Sweden.

25.March, **Invited lecture**, Max Planck Institute for Neurobiology, Munich, Germany.

05.March, **COSYNE Worksop on Neural Coordinate Transformations**, Lisbon, Portugal.

**2018** 06.December **Workshop, “Language Across Populations: Cognition and Neurobiology**,

Dept. of Linguistics, NTNU, Trondheim, Norway.

23.November, **Invited lecture**, St. Olav’s Hospital, NTNU, Trondheim, Norway.

18.October **NTNU-Yale Collaborative Workshop**, Yale University, New Haven, CT, USA.

12.October **Invited lecture**, Netherlands Inst. Neuroscience, Amsterdam.

17.September **Invited lecture**, U. Amsterdam, Ctr. for Neuroscience, The Netherlands.

11.September **Speaker, Neurobiology of Empathy**, Nencki Institute, Warsaw, Poland.

23.August **2nd Nordic PhD Summit, “Think Open”**, Helsinki, Finland.

09.July **FENS Symposium: Decision, action and navigation in rodent parietal cortex**, Berlin, Germany.

08.May **Invited Lecture**, Dept. Neuroscience, University of Oslo, Norway.

**2017** 15.December **CNS Function, Damage & Repair workshop**, NTNU, Trondheim, Norway.

08.September (**Keynote) European Society for Movement Analysis in Adults and Children**, Trondheim, Norway.

09.June **Nordic Neuroscience**, bi-annual conference, Stockholm, Sweden.

10.May **Advanced Neurobiology**, University of Oslo, Norway.

**2016** 13.Dec. **Inscopix Featured Investigator,** webinar.

27.Aug. **Scandinavian Physiological Society**, bi-annual conference, Oslo, Norway.

08.June **SCANDEM**, Conference of the Nordic Microscopy Society, Trondheim, Norway.

14.Jun. (**Keynote) Conference on Language and Perception,** NTNU, Trondheim, Norway.

20.May **EMBO: “Imaging the Brain”,** Nencki Institute, Warsaw, Poland.

01.Mar. **Invited lecture,** University of Hamburg, Germany.

06.Jan. **Workshop on machine learning and neuroscience,** NTNU, Trondheim, Norway.

**2015** 26.Nov. **Joy of Brain Research meeting,** Tohoku University, Tohoku, Japan.

17.Nov. **NevroNor**, Norwegian national neuroscience meeting, Olso, Norway.

14.June **Transylvanian Experimental Neuroscience Summer School (TENSS)**, Transylvania, Romania.

20.Mar. **Neuroscience & Vision Symposium**, Netherlands Institute for Neuroscience, Amsterdam, The Netherlands.

**2014** 27.Nov. **Network Meeting for Neuroscience in the North**, University of Tromsø, Norway.

09.Sep. **Brain Circuits Course**, Nobel Institute for Neurophysiology, Karolinska Institute, Stockholm, Sweden.

**2012** 22.Mar. **Guest lecture,** “Parietal Cortex Functions in Primates and Rodents”, University of Oslo.

**2009** 07.Jan. **Winter Conference on Learning and Memory**, Park City, UT, USA.

16.Jun. **Spring Hippocampal Research Conference**, Verona, Italy.

**2008** 23.Nov. **Learning & Memory Course**, Nobel Institute for Neurophysiology, Karolinska Institute, Stockholm, Sweden.

14.Nov. **Molecular and Cellular Cognition Society**, Washington, DC, USA.

08.July **SAGE Summer Institute for Cognitive Neuroscience**, Lake Tahoe, CA, USA.

**2007** 07.July **Invited lecture,** International School for Advanced Studies (SISSA), Trieste, Italy.

**2006** 13.Oct. **Molecular and Cellular Cognition Society**, Atlanta, GA, USA.

30.July **Centre for the Biology of Memory**, NTNU, Trondheim, Norway.

**2005** 21.Apr. **Meeting on Learning and Memory**, Cold Spring Harbor Laboratory, NY, USA.

**INVITED LECTURES: OUTREACH**

**2020** 25.September **Young Academy of Norway ‘Researchers’ Night’,** Trondheim, Norway.

**2019** 09.January **Conference on Artificial Intelligence**, National Directorate of Health, Oslo, Norway.

**2018** 05.December **Recognizing Excellent Science**, Onsager & Outstanding

Academic Fellows, NTNU, Trondheim, Norway.

28.September **Young Researchers’ Academy of Norway,** Trondheim, Norway.

06.March **Young Research Talents Meeting**, **Res. Council of Norway**, Oslo, Norway.

24.January **“Artificial intelligence: friend or foe?”**, NTNU & TV2 Norge, Trondheim, Norway.

**2017** 04.September **60 Year Anniversary, Medical Assn. Norway**, Trondheim, Norway.

**2016** 06.Oct. **Norwegian Academy of Science and Technology: “Artificial Intelligence”,**

panellist, Trondheim, Norway.

**2015** 08, 09.Sep. **Lundbeck 100th Anniversary Symposium**, Olso & Trondheim, Norway.

19.Mar. **Norwegian Research Council Meeting on** **Career Development**, Oslo, Norway.

**2014** 11.Jun. **Norwegian Research Council, NTNU** **Workshop on ERC Grant Writing**,

Trondheim, Norway.

29.Apr. **TEDx**, “How your brain geotags memories”, Trondheim, Norway.