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|  | **Dimitar Kostadinov, PhD** | |
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|  | University College London | <dimvladkost.github.io> |
|  | London WC1 E6BT, UK | +44 07917961241 |
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|  | **EDUCATION** | |
| 2015 | ***Harvard University***, Cambridge, MA, USA  Ph.D., Neuroscience | |
| 2009 | ***McGill University***, Montréal, QC, Canada  B.Sc., Physiology (*First Class Honours*) | |
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|  | **RESEARCH POSITIONS** | |
| 2015- | **Postdoctoral Research Associate, *University College London***  Neural Computation Laboratory, Wolfson Institute for Biomedical Research  Advisor: Michael Häusser  Population coding in the cerebellum during goal-directed behaviour | |
| 2009-15 | **Ph.D. student, *Harvard University***  Center for Brain Science, Department of Molecular and Cellular Biology  Advisor: Joshua R. Sanes  Mechanism and function of dendritic self-avoidance in the mammalian nervous system | |
| 2008-9 | **Research Assistant, *McGill University***  Department of Physiology  Advisor: Ellis Cooper  Activity-dependent tuning of voltage-gated ion channels in sympathetic neurons | |
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|  | **HONOURS AND AWARDS** | |
| 2020 | Early Career Neuroscience Prize, *UCL* | |
| 2019 | Travel Awards: *Guarantors of Brain,* *The Physiological Society* | |
| 2016-18 | Long-Term Postdoctoral Fellowship, *EMBO* | |
| 2012-15 | NRSA Individual Predoctoral Fellowship, *NIH* | |
| 2012 | Meselson Prize, *Harvard University* | |
| 2006 | Student-Athlete Academic Honour Roll, *McGill University* | |
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|  | **PUBLICATIONS** | |
| 2022 | **Kostadinov D**, Häusser M  [Reward signals in the cerebellum: origins, targets, and functional implications](https://doi.org/10.1016/j.neuron.2022.02.015)  ***Neuron***110(8): 1290-1303. | |
| 2021 | Sezener E\*, Grabska-Barwińska A\*, **Kostadinov D**\*, Beau M, Krishnagopal S, Budden D, Hutter M, Veness J, Botvinick M, Clopath C, Häusser M, Latham PE  [A rapid and efficient learning rule for biological neural circuits](https://doi.org/10.1101/2021.03.10.434756)  ***bioRxiv*** preprint. **\*Equal contribution** | |
|  | Steinmetz NA\*, Aydin Ç\*, Lebedeva A\*, Okun M\*, Pachitariu M\*,…**Kostadinov D**,…Harris TD  [Neuropixels 2.0: A miniaturized high-density probe for stable, long-term brain recordings](https://doi.org/10.1126/science.abf4588)  ***Science*** 372(6539). (16th of 39 authors) | |
| 2019 | **Kostadinov D**, Beau M, Blanco-Pozo M, Häusser M  [Predictive and reactive reward signals conveyed by climbing fiber inputs to cerebellar Purkinje cells](https://doi.org/10.1038/s41593-019-0381-8). ***Nature Neuroscience*** 22(6): 950-62.  Previewed article: J. Medina: Teaching the cerebellum about reward [[link](https://doi.org/10.1038/s41593-019-0409-0)] | |
|  | **Kostadinov D**, Mathy A, Clark BA  [Dynamics of the Inferior Olive Oscillator and Cerebellar Function](https://doi.org/10.1007/978-3-319-97911-3_44-2)  In: Manto M, Gruol D, Schmahmann J, Koibuchi N, Sillitoe R (eds)  ***Handbook of the Cerebellum and Cerebellar Disorders***. Springer, Cham. | |
| 2018 | Ing-Esteves S, **Kostadinov D**, Marocha J, Sing AD, Joseph KS, Laboulaye MA, Sanes JR, Lefebvre JL  [Combinatorial effects of alpha-and gamma-protocadherins on neuronal survival and dendritic self-avoidance](https://doi.org/10.1523/JNEUROSCI.3035-17.2018). ***Journal of Neuroscience*** 38(11): 2713-29. | |
| 2017 | Peng YR, Tran NM, Krishnaswamy A, **Kostadinov D**, Martersteck EM, Sanes JR  [Satb1 regulates contactin 5 to pattern dendrites of a mammalian retinal ganglion cell](https://doi.org/10.1016/j.neuron.2017.07.019)  ***Neuron*** 95(4): 869-83. | |
| 2015 | **Kostadinov D**, Sanes JR  [Protocadherin-dependent dendritic self-avoidance regulates neural connectivity and circuit function](https://doi.org/10.7554/eLife.08964.001). ***eLife*** 4: e08964.  Previewed article: A. Garrett and R. Burgess: Self-awareness in the retina [[link](https://doi.org/10.7554/eLife.10233)] | |
| 2012 | Lefebvre JL, **Kostadinov D**, Chen WV, Maniatis T, Sanes JR  [Protocadherins mediate dendritic self-avoidance in the mammalian nervous system](https://doi.org/10.1038/nature11305)  ***Nature*** 488(7412): 517-21. | |
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|  | **ONGOING PROJECTS** | |
| 2019- | **Cerebellar learning: fast and slow**  Employing chronic two-photon imaging, computational modelling to investigate changes in teaching signals conveyed to the cerebellum as animals learn and adapt in a sensorimotor integration task.  - In collaboration with Federico Rossi and Sam Clothier | |
| 2018- | **Transformation of Purkinje cell population codes in the cerebellar nuclei**  Using Neuropixels probes to define how inhibitory Purkinje cell outputs are integrated by principal neurons in the cerebellar nuclei.  - In collaboration with Maxime Beau | |
| 2017- | **Optogenetic identification of cell type-specific spiking signatures in the cerebellum**  Combining cell type-specific optogenetics, electrophysiology, and machine learning to develop methods to classify cerebellar neurons based on their unique functional identities  - In collaboration with the Cerebellar Cell-type Classification Consortium (C4). | |
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|  | **INVITED TALKS** | |
| 2022 | Dendrites 2022: Dendritic anatomy, molecules, and function, *EMBO Workshop, Greece* | |
|  | *Institut du Cerveau – Paris Brain Institute (ICM), France* | |
|  | Wu Tsai Institute, *Yale University, USA [remote]* | |
|  | Center for Molecular and Behavioral Neuroscience, *Rutgers University, USA [remote]* | |
| 2021 | Centre for Developmental Neurobiology*, King’s College London, UK [remote]* | |
|  | Department of Neurobiology, *Northwestern University, USA [remote]* | |
|  | Department of Cell and Developmental Biology, *UCL, UK [remote]* | |
|  | SickKids Hospital and Department of Physiology, *University of Toronto, Canada [remote]* | |
|  | Department of Neuroscience, Physiology, and Pharmacology, *UCL, UK [remote]* | |
| 2020 | Early Career Neuroscience Prize Symposium, *UCL, UK [remote]* | |
|  | Cortex Club, *University of Oxford, UK* | |
| 2019 | Google DeepMind, *Google, UK* | |
|  | Neuroscience Department, *Institute Pasteur, France* | |
|  | The Cerebellum in Health and Disease, *Gordon Research Seminar, Switzerland* | |
|  | 10th International Meeting of the SRCA, *University of Sheffield, UK* | |
|  | Wolfson Institute for Biomedical Research Retreat, *UCL, UK* | |
|  | Division of Medicine Retreat, *UCL, UK* | |
|  | Department of Physiology, *McGill University, Canada* | |
| 2016 | NeuroTuscany, *Monticastelli Pisano, Italy* | |
| 2012 | Program in Neuroscience Retreat, *Harvard University, USA* | |
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|  | **SELECTED CONFERENCE PRESENTATIONS** | |
| 2022 | *EMBO Workshop: Dendrites 2022, Greece*  Dendritic gated networks: A rapid and efficient learning rule for biological neural circuits | |
| 2021 | *Society for Neuroscience Annual Meeting, USA* [remote]  Fast and slow learning signals mediated by climbing fiber inputs to cerebellar Purkinje cells | |
| 2019 | *Gordon Research Conference: Cerebellum, Switzerland*  Dynamic coordination of climbing fiber input to cerebellar Purkinje cell populations during learning | |
| 2018 | *Society for Neuroscience Annual Meeting, USA*  Dynamic coordination of climbing fiber input to Purkinje cell populations during goal-directed action | |
| 2017 | *Society for Neuroscience Annual Meeting, USA*  Probing the functional interactions between neural populations in the cerebellar cortex and deep nuclei of awake behaving mice | |
|  | *Gordon Research Conference: Cerebellum, USA*  Population coding in the Purkinje cell network during execution of goal-directed action | |
| 2014 | *Society for Neuroscience Annual Meeting, USA*  Roles of Protocadherin-mediated self-avoidance in retinal circuit function | |
|  | *Cold Spring Harbor Meetings: Neuronal Circuits, USA*  The role of Protocadherin-mediated self-avoidance in retinal circuit function | |
| 2012 | *Society for Neuroscience Annual Meeting, USA*  Gamma-Protocadherins pattern starburst amacrine dendrites by self-avoidance | |
| 2009 | *Society for Neuroscience Annual Meeting, USA*  Developing postsynaptic neurons require functional presynaptic innervation to tune voltage-gated currents and fire action potentials at appropriate frequencies | |
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|  | **TEACHING EXPERIENCE** | |
| 2018-19 | Course assistant, *Neuropixels Training Course, UCL* | |
| 2015 | Guest Lecturer, *Cellular Basis of Brain Function, UCL* | |
| 2013 | Teaching Fellow, *Systems Neuroscience, Harvard University* | |
| 2011 | Teaching Fellow, *Neurobiology of Behavior, Harvard University* | |
| 2008-9 | Teaching Assistant, *Mammalian Physiology, McGill University* | |
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|  | **STUDENT MENTORSHIP** | |
|  | **Supervision of PhD students** | |
| 2017- | Maxime Beau, UCL (thesis project) | |
| 2012 | Olivia Ho-Shing, Harvard University (rotation project) | |
|  | **Supervision of MSc students** | |
| 2019-20 | Gabriela Martinez, CentraleSupélec (currently Business Intelligence Engineer, Amazon) | |
|  | Michael Maibach, UCL (currently PhD student, McGill University) | |
| 2017-18 | Yooni Chung, UCL (currently Data Engineer, Pirical) | |
|  | Hassan Bassam, UCL (currently PhD student, Max Planck School of Cognition) | |
| 2016-17 | Marta Blanco-Pozo, UCL (currently PhD student, Oxford University) | |
|  | **Supervision of undergraduate students** | |
| 2021- | Sam Clothier, UCL (recipient of Physiological Society Summer Studentship) | |
| 2020-21 | Mátyás Váradi, UCL (currently PhD student, Cambridge University) | |
| 2017-18 | Margaret Conde Parades, UCL (recipient of Physiological Society Summer Studentship) | |
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|  | **PROFESSIONAL SERVICE AND ENGAGEMENT** | |
| 2017- | Member, *Physiological Society* | |
| 2015- | Ad-hoc reviewer: *Cell, eLife, Journal of Neuroscience, Nature Neuroscience, Neuron, PLOS Biology, PNAS, Scientific Reports* | |
| 2009- | Member, *Society for Neuroscience* | |