



Curriculum Vitae Professor Dr Peter Dayan

Name: Peter Dayan
Born: 25 August 1965

Research Priorities: Cognitive science, neuroscience, computational neuroscience, artificial intelligence, decision making processes, processes of learning

Peter Dayan is a British cognition and neuroscientist and a pioneer in the field of artificial intelligence. His research is at the interface between the intelligence of living beings and machines. He specifically wants to know how living beings decide and how artificial intelligences decide. To that end he studies the decision-making processes in the brain, the role of neuromodulators and neuronal disturbances in psychiatric disorders.

Academic and Professional Career

since 2020	Professor of Computer Science, University of Tübingen, Tübingen Germany
since 2018	Director, Max Planck Institute for Biological Cybernetics, Tübingen, Germany Deputy Director, Max Planck UCL Centre for Computational Psychiatry and Ageing Research, Berlin, Germany
2002 - 2018	Professor and Director, Gatsby Computational Neuroscience Unit, University College London (UCL), London, UK
1998 - 2001	Reader, Computational Neuroscience, UCL, London, UK
1995 - 1998	Assistant Professor, Brain and Cognitive Science, Massachusetts Institute of Technology (MIT), Cambridge, USA

Project Coordination, Membership in Collaborative Research Projects

- 2020 - 2021 Applicant, Subproject “Computational and Physiological Approaches to the Primate Anxiety Connectome”, Priority Programme (SPP) 2014, German Research Council (DFG), Germany
- since 2017 Leiter, Teilprojekt “Task-dependent top-down modulation of visual processing”, Collaborative Research Centres (SFB) 1233, DFG, Germany

Honours and Awarded Memberships

- since 2023 Member, German National Academy of Sciences Leopoldina, Germany
- since 2020 Alexander von Humboldt Professor, Alexander von Humboldt Foundation, Bonn, Germany
- since 2019 Member, American Association for the Advancement of Science (AAAS), USA
- since 2018 Member, Royal Society, UK
- 2017 Brain Prize, Grete Lundbeck European Brain Research Foundation, Copenhagen, Denmark
- 2012 David E. Rumelhart Prize, Cognitive Science Society (CSS), Seattle, USA

Research Priorities

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Peter Dayan is concerned with the computer-aided, psychological, and neuronal fundamentals of decision-making processes. He studied the influence of messenger substances (dopamin, serotonin) on the decision-making processes in the brain and researched how an impaired decision making can lead to depression, addiction, anxiety, and personality disorder. He aims to link the psychological with the neuronal view on these disorders and to thus learn more about the causes and possible cures.

With the aid of theoretical models, he researched various forms of learning and presented pathbreaking work on reinforcement learning. Here, the brain connects past positive or negative experiences experiences – rewards and punishments – and incorporates them in future decisions.

For his research he developed novel statistical and programming methods with which he can simulate processes of learning and decision making in a computer. With that he also established

important principles for the development of artificial neural networks. Peter Dayan also advocates the implementation of findings from fundamental research in medicine and industry.