

Dr Vincent Ka Ming Cheung (張家銘)

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RESEARCH THEMES

Cognitive neuroscience, brain decoding, reward and pleasure, machine learning, music

EXPERIENCE

- 04.2025 – **Researcher**, Sony Computer Science Laboratories, Tokyo
- 04.2022 – 03.2025 **Project Researcher**, Sony Computer Science Laboratories, Tokyo
Project: Neural- and physiology-based music recommendation systems
Advisor: Shinichi Furuya
- 11.2020 – 03.2022 **Postdoctoral Fellow**, Institute of Information Science, Academia Sinica
Projects: Decoding perceived musical sounds from human brain activity, and Violin fingering pattern generation using deep-learning
Advisor: Li Su

EDUCATION

- 03.2016 – 01.2021 **Dr. rer. nat. in Psychology** (magna cum laude)
Max Planck Institute for Human Cognitive and Brain Sciences & Leipzig University
Thesis: The neurocognitive basis of musical expectancy and pleasure: A computational modelling approach
Advisors: Angela D. Friederici, Stefan Koelsch, Lars Meyer
- 10.2013 – 06.2016 **MSc in Computational Neuroscience** (sehr gut)
Technical University of Berlin
Thesis: The processing of violations in nested musical structures
Advisors: John-Dylan Haynes, Stefan Koelsch
- 10.2009 – 07.2013 **MMath in Mathematics** (First Class Honours)
University of Warwick
Thesis: Modelling Networks of Spiking Neurons
Advisor: Magnus J.E. Richardson

SELECTED PUBLICATIONS

1. **V.K.M. Cheung**, P.M.C. Harrison, S. Koelsch, M.T. Pearce, A.D. Friederici, L. Meyer, “Cognitive and sensory expectations independently shape musical expectancy and pleasure”, *Philosophical Transactions of the Royal Society B* 379:20220420, January 2024.
2. **V.K.M. Cheung**, Y.-P. Peng, J.-H. Lin, L. Su, “Decoding musical pitch from human brain activity with automatic voxel-wise whole-brain fMRI feature selection”, *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, June 2023
3. **V.K.M. Cheung**, S. Sakamoto, “Separating Uncertainty from Surprise in Auditory Processing with Neurocomputational Models: Implications for Music Perception”, *Journal of Neuroscience* 42 (29), 5657-5659, July 2022.
4. **V.K.M. Cheung**, P.M.C. Harrison, L. Meyer, M.T. Pearce, J.-D. Haynes, S. Koelsch, “Uncertainty and surprise jointly predict musical pleasure and amygdala, hippocampus, and auditory cortex activity”, *Current Biology* 29 (23), 4084-4092, December 2019.

- **Covered by leading international press agencies in over 12 languages**, including CNN, Newsweek, BBC Science Focus, Frankfurter Allgemeine Zeitung, Agence France-Presse, la Repubblica.
5. **V.K.M. Cheung**, L. Meyer, A.D. Friederici, S. Koelsch, “The right inferior frontal gyrus processes nested non-local dependencies in music”, *Scientific Reports* 8 (1), 3822, February 2018.
- Scientific Reports’ **Top 100 most read paper in neuroscience** and **Editors’ Choice** in 2018.

SELECTED PRIZES, AWARDS, AND HONOURS

2021 – 2022	Croucher Fellowship for Postdoctoral Research (33,830 USD)
2016 – 2019	Croucher Scholarship for Doctoral Studies (8,964 EUR)
2019	International Society for Music Information Retrieval (ISMIR) Community Grant (350 EUR)
2018	Science Slam Winner at 7 th Visions-in-Science Conference, Berlin (100 EUR)
2017 – 2019	Research Academy Leipzig travel grant for international conference presentation (3 x 800 EUR)
2014 – 2015	Das Deutschlandstipendium —The Germany Scholarship, sponsored by IBM Germany and the German Federal Government (3,600 EUR)
2012	University of Warwick Undergraduate Research Scholarship (796 GBP)
2009	University of Warwick International Office Undergraduate Scholarship (8,000 GBP)

SELECTED PRESENTATIONS

1. “Investigating neurocognitive mechanisms of musical pleasure and expectancy with computational modelling”, Joint Conference of the 17th International Conference on Music Perception and Cognition (ICMPC) and the 7th Conference of the Asia-Pacific Society for the Cognitive Sciences of Music (APSCOM), Tokyo, 26 August 2023.
2. “Understanding music-evoked emotions with neural encoding and decoding”, Brain, Cognition and Algorithm Conference, Taipei, 27 November 2021.
3. “Connecting musical expectancy and pleasure: Insights from cognitive neuroscience”, Art and Affect in the Predictive Mind Conference, 2 July 2021 (online).
4. “The neurocognitive basis of musical expectancy and pleasure”, 7th Taiwanese Music and Audio Computing Workshop, Taipei, 11 December 2020.
5. “Model-based fMRI reveals modulation of reward network activity to predictions in tonal harmony”, Biennial Meeting of the Society for Music Perception and Cognition (SMPC), New York City, NY, 8 August 2019.

SELECTED PROFESSIONAL SERVICE AND OUTREACH

- Spokesperson for Studies with Human Participants and drafter of Code of Ethics, International Society for Music Information Retrieval (2024 – present)
- Organiser of symposium on ‘Predictions in Music: Neurocognitive Insights and Computational Approaches’ at Joint Conference of the 17th International Conference on Music Perception and Cognition (ICMPC) and the 7th Conference of the Asia-Pacific Society for the Cognitive Sciences of Music (APSCOM), Tokyo, August 2023.
- Invited alumni talk at 12th IMPRS Summer School, Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, 28 June 2023.
- Interviews for Agence France-Presse, BBC World Service, CBC, CNN, Das Erste (German public TV), Deutschlandfunk Nova, MDR Kultur, Newsweek, The Times, Westdeutscher Rundfunk