Courses and Books Studied After Ph.D.

Mathematics and Physics

1. Statistical Mechanics Simplified, mathOgenius, YouTube. (2022)
2. Multivariable Calculus (Math 21a), Oliver Knill, Harvard University. (2022)
3. Symmetry and Group Theory in Physics, Mark Weitzman. (2021)
4. Vibrations and Waves (8.03), Walter Lewin, MIT. (2021)
5. Quantum Mechanics (PHY 4200), Brant Carlson, Carthage College. (2018)
6. [Book] L. Perko, Differential Equations and Dynamical Systems (3rd Edition), Springer, 2000. (2017)
7. [Book] J. P. Sethna, Statistical Mechanics: Entropy, Order Parameters, and Complexity, Clarendon Press, 2006. (2015)
8. [Book] M. R. Spiegel, Schaum's Outlines: Vector Analysis, and an Introduction to Tensor Analysis, McGraw-Hill, 1959. (2014)
9. [Book] R. F. Pierret, Semiconductor Device Fundamentals, Addison-Wesley Publishing Company, 1996. (2014)
10. Information Theory (ECE 2522), Heung-No Lee, University of Pittsburgh. (2007)

Neuroscience, Psychology, and Philosophy

1. Key Concepts of Buddhism, Master TaHang Shih. (2024)
2. Philosophy and Life, Pei-Jung Fu, National Taiwan University. (2023)
3. [Book] C. Koch, The Feeling of Life Itself: Why Consciousness Is Widespread But Can't Be Computed, MIT Press, 2019. (2022)
4. Mathematical Neuroscience, Bard Ermentrout, International Centre for Theoretical Sciences. (2022)
5. [Book] M. Steriade and R. W. McCarley. Brain Control of Wakefulness and Sleep (2nd Edition), Kluwer Academic/Plenum Publishers, 2005. (2021)
6. Introduction to Philosophy (I), Rong-Lin Wang, National Taiwan University. (2020)
7. [Book] R. J. Davidson and S. Begley, The Emotional Life of Your Brain, Avery, 2012. (2020)
8. [Book] Y. N. Harari, Sapiens: A Brief History of Humankind, McClelland & Stewart, 2014. (2020)
9. EEG Basics, Jeremy Moeller, Yale University. (2020)
10. [Book] C. Weekes, Self-Help for Your Nerves, Thorsons Classics, 2015. (2020)
11. [Book] M. F. Bear, B. W. Connors, and M. A. Paradiso, Neuroscience: Exploring the Brain, Higher Education Press, New World Library, 2002. (2019)
12. [Book] E. Tolle, The Power of Now: A Guide to Spiritual Enlightenment, New World Library, 2000. (2019)
13. Introduction to Psychology, Kaiping Peng, Tsinghua University. (2019)
14. [Book] C. Koch, Consciousness: Confession of a Romantic Reductionist, MIT Press, 2012. (2017)
15. Coding and Vision 101, Profs. Christof Koch and Clay Reid, Allen Brain Institute. (2014)

16. [Book] Society for Neuroscience, Brain Facts: A Primer on the Brain and Nervous System (7th Edition), SfN, 2012. (2014)
17. Understanding the Brain, Jeanette Norden, The Great Courses. (2008)
18. [Selected Readings on Consciousness]
    18.1. A. M. Cebolla and G. Cheron, "Understanding neural oscillations in the human brain: from movement to consciousness and vice versa," Frontiers in Psychology 10, Article 1930, 2019. (2023)
    18.2. A. Bielecki, A. Kokoszka, and P. Holas, "Dynamic systems theory approach to consciousness," International Journal of Neuroscience 104, 29-49, 2000. (2023)
    18.3. P. Krauss and A. Maier, "Will we ever have conscious machines?" Frontiers in Computational Neuroscience 14, Article 556544, 2020. (2023)
19. [Selected Readings on Neural Control and Learning]
    19.1. B. A. Richards et al., "A deep learning framework for neuroscience," Nature Neuroscience 22, 1761-1770, 2019. (2022)
    19.2. E. O. Neftci and B. B. Averbeck, "Reinforcement learning in artificial and biological systems," Nature Machine Intelligence 1, 133-143, 2019. (2022)
    19.3. M. Ito, "Control of mental activities by internal models in the cerebellum," Nature Reviews Neuroscience 9, 304-313, 2008. (2013)
20. [Selected Readings on Sleep Control]
    20.1. R. G. Malkani and P. C. Zee, "Brain stimulation for improving sleep and memory," Sleep Medicine Clinics 15, 101-115, 2020. (2023)
    20.2. E. F. Pace-Schott and J. A. Hobson, "The neurobiology of sleep: genetics, cellular physiology and subcortical networks," Nature Reviews Neuroscience 3, 591-605, 2002. (2021)
    20.3. B. Lafon, et al., "Low frequency transcranial electrical stimulation does not entrain sleep rhythms measured by human intracranial recordings," Nature Communications 8: 1199, DOI: 10.1038/s41467-017-01045-x, 2017. (2021)
21. [Selected Readings on Neural Oscillations and Brain Rhythms]
    21.1. E. Stark, A. Levi, and H. G. Rotstein, "Network resonance can be generated independently at distinct levels of neuronal organization," PLOS Computational Biology 18, e1010364: 1-33, 2022. (2023)
    21.2. B. Hutcheon and Y. Yarom, "Resonance, oscillation and the intrinsic frequency preferences of neurons," Trends in Neurosciences 23, 216-222, 2000. (2023)
    21.3. N. Salansky, A. Fedotchev, and A. Bondar, "Responses of the nervous system to low frequency stimulation and EEG rhythms: clinical implications," Neuroscience and Biobehavioral Reviews 22, 395-409, 1998. (2014)
    21.4. I. Soltesz, "The Brain Prize 2011: From microcircuit organization to constellations of brain rhythms," Trends in Neurosciences 34, 501-503, 2011. (2014)
    21.5. T. J. Buschman, E. L. Denovellis, C. Diogo, D. Bullock, and E. K. Miller, "Synchronous oscillatory neural ensembles for rules in the prefrontal cortex," Neuron 76, 838-846, 2012. (2014)

Engineering (Control Theory, Robotics, Machine Learning, and Power Electronics)

1. Introduction to Deep Learning (6.S191), Alexander Amini and Ava Amini, MIT. (2023)
2. Reinforcement Learning for Engineers, Brian Douglas, MATLAB. (2021)
3. Machine Learning (CS 229), Andrew Ng, Stanford University. (2020)
4. Artificial General Intelligence (6.S099), Lex Fridman et al., MIT. (2020)
5. [Book] E. Alpaydin, Introduction to Machine Learning (2nd Edition), MIT Press, 2010. (2019)
6. [Book] A. Burkov, The Hundred-Page Machine Learning Book, Publisher: Andriy Burkov, 2019. (2019)
7. Introduction to Robotics (CS 223A), Oussama Khatib, Stanford University. (2018)
8. [Book] M. Mataric, The Robotics Primer, The MIT Press, 2007. (2018)

9. Robotics and Automation (ME 454/MME 554), Rico Picone, Saint Martin's University. (2018)
10. Control of Mobile Robots, Magnus Egerstedt, Georgia Institute of Technology. (2018)
11. Introduction to Robotics (ECGR 4161/5196), James Conrad, University of North Carolina at Charlotte. (2018)
12. [Book] R. W. Erickson and D. Maksimovic, Fundamentals of Power Electronics (2nd Edition), Kluwer Academic Publishers, 2004. (2015)
13. [Book] T. Hastie, R. Tibshirani, and J. Friedman, The Elements of Statistical Learning: Data Mining, Inference, and Prediction (2nd Edition), Springer, 2008. (2015)
14. Deep Learning and Neural Networks, Kevin Duh, Nara Institute of Science and Technology. (2014)
15. [Book] S. Buso and P. Mattavelli, Digital Control in Power Electronics, Morgan and Claypool Publishers, 2006. (2013)
16. [Book] M. Tooley and D. Wyatt, Aircraft Electrical and Electronic Systems: Principles, Maintenance and Operation, Elsevier, 2009. (2013)
17. [Book] M. Zima and M. Bockarjova, Operation, Monitoring and Control Technology of Power Systems, ETH Zurich, 2007. (2012)
18. [Book] C. Barker, HVDC for Beginners and Beyond, Alstom Grid, 2012. (2012)
19. [Book] D. Kirschen and G. Strbac, Fundamentals of Power System Economics, John Wiley & Sons, 2004. (2012)
20. [Book] A. Yazdani and R. Iravani, Voltage-Sourced Converters in Power Systems—Modeling, Control, and Applications, IEEE Press and John Wiley & Sons, 2010. (2012)
21. Large-Scale Dynamic Systems (18-777), Marija Ilic, Carnegie Mellon University. (2011)
22. Special Topics in Electric Power—FACTS and HVDC Technologies (ECE 2795), Gregory Reed, University of Pittsburgh. (2011)
23. [Book] G. Andersson, Dynamics and Control of Electric Power Systems, ETH Zurich, 2010. (2011)
24. Power System Operations and Control, S. N. Singh, IIT Kanpur. (2011)
25. [Book] F. L. Lewis, D. Vrabie, and V. L. Syrmos, Optimal Control (3rd Edition), John Wiley & Sons, 2012. (2009)
26. [Book] R. S. Sutton and A. G. Barto, Reinforcement Learning: An Introduction, MIT Press, 1998. (2009)
27. [Book] S. Sastry and M. Bodson, Adaptive Control: Stability, Convergence, and Robustness, Prentice-Hall, 1989. (2008)
28. Digital Communication Theory (ECE 2595), Heung-No Lee, University of Pittsburgh. (2008)
29. [Book] C.-T. Chen, Linear System Theory and Design (3rd Edition), Oxford University Press, 1999. (2006)
30. [Book] C. L. Phillips and R. D. Harbor, Feedback Control Systems (4th Edition), Prentice Hall, 2000. (2006)
31. [Selected Readings on Control Theory]
    31.1. G. Yan, G. Tsekenis, B. Barzel, J.-J. Slotine, Y.-Y. Liu, and A.-L. Barabasi, "Spectrum of controlling and observing complex networks," Nature Physics 11, 779-786, 2015. (2016)
    31.2. R. D. Braatz, "Control engineering and the birth of aviation," IEEE Control Systems Magazine, 6-7, 2012. (2015)

31.3. M. C. Priess, R. Conway, J. Choi, J. M. Popovich, and C. Radcliffe, "Solutions to the inverse LQR problem with application to biological systems analysis," IEEE Transactions on Control Systems Technology 23, 770-777, 2014. (2015)

31.4. N. Oleng, Decentralized Adaptive Control, Ph.D. Dissertation, Yale University, 2004. (2014)

31.5. J.-B. He, Q.-G. Wang, and T.-H. Lee, "PI/PID controller tuning via LQR approach," Chemical Engineering Science 55, 2429-2439, 2000. (2014)

31.6. P. A. Ioannou, "Decentralized Adaptive control of interconnected systems," IEEE Transactions on Automatic Control AC-31, 291-298, 1986. (2014)

31.7. L. Zhang, Modeling and Control of VSC-HVDC Links Connected to Weak AC Systems, Ph.D. Dissertation, Royal Institute of Technology, Stockholm, Sweden, 2010. (2013)

31.8. L. Vandenberghe and S. Boyd, "Semidefinite programming," SIAM Review 38, 49-95, 1996. (2013)

31.9. K. J. Astrom, "Limitations on control system performance," European Journal of Control 6, 2-20, 2000. (2013)

31.10. S. Mukhopadhyay, "P.I.D. equivalent of optimal regulator," Electronics Letters 14, 821-822, 1978. (2013)

32. [Selected Readings on Machine Learning]

32.1. J. Fan, C. Ma, and Y. Zhong, "A selective overview of deep learning," Statistical Science 36, 264-290, 2021. (2023)

32.2. K. Q. Wienberger, F. Sha, and L. K. Saul, "Convex optimizations for distance metric learning and pattern classification," IEEE Signal Processing Magazine, 146-150 and 158, 2010. (2013)

Economics

1. [Book] Z.-W. Chen, The Logic of Finance, International Culture Publishing Corporation, 2009. (2016)

2. International Trade Theory and Policy, Chia-Chang Chuang, Chinese Television System (CTS), Taiwan. (2013)

3. Advanced Macroeconomics, Danyang Xie, Hong Kong University of Science and Technology. (2013)

4. International Finance II, Sen-Jieh Li, Chinese Television System (CTS), Taiwan. (2013)

5. International Finance I, Sen-Jieh Li, Chinese Television System (CTS), Taiwan. (2013)

6. Macroeconomics, Wen-Sheng Xie and Zhen-Ying Zhao, Chinese Television System (CTS), Taiwan. (2013)

7. Advanced Microeconomic Theory I (Econ 2100), Luca Rigotti, University of Pittsburgh. (2012)

8. Advanced Macroeconomic Theory I (Econ 2110), Marla Ripoll, University of Pittsburgh. (2012)

9. Macroeconomics, Zhigang Yuan, Fudan University. (2012)

10. Financial Markets (Econ 252), Robert Shiller, Yale University. (2012)

11. Intermediate Microeconomics (Econ 1100), Stephen Snyder, University of Pittsburgh. (2012)

12. Intermediate Macroeconomics (Econ 1110), Hyeon Park, University of Pittsburgh. (2012)

13. [Book] N. G. Mankiw, Principles of Economics (3rd Edition), South-Western College Pub., 2004. (2012)

14. Economics, Timothy Taylor, The Great Courses. (2011)

15. Thinking Like an Economist, Randall Bartlett, The Great Courses. (2011)