

# Andrew W. Lo

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## Education:

9/80 – 6/84 Harvard University. A.M., Ph.D. in Economics, June 1984.

9/77 – 5/80 Yale University. B.A. in Economics, May 1980.

## Current Academic Appointments:

7/17 – Present External Faculty, Santa Fe Institute.

7/12 – Present Charles E. and Susan T. Harris Professor, MIT Sloan School.

7/11 – Present Affiliated Faculty, MIT Electrical Engineering and Computer Science Dept.

6/11 – Present Principal Investigator, MIT Computer Science and Artificial Intelligence Lab.

9/92 – Present Director, MIT Laboratory for Financial Engineering, MIT Sloan School.

9/89 – Present Research Associate, National Bureau of Economic Research.

## Publications, Most Recent 5 Years:

### *Refereed Journal Articles*

1. Brennan, Thomas J., and Andrew W. Lo (2015), Reply to '(Im)Possible Frontiers: A Comment,' *Critical Finance Review* 4 (1), 157–171.
2. Chaudhuri, Shomesh E., and Andrew W. Lo (2015), Spectral Analysis of Stock-Return Volatility, Correlation, and Beta, *2015 IEEE Signal Processing and Signal Processing Education Workshop (SP/SPE)*, 232–236.
3. Fagnan, David E., N. Nora Yang, John C. McKew, and Andrew W. Lo (2015), Financing Translation: Analysis of the NCATS Rare-Diseases Portfolio, *Science Translational Medicine* 7 (276), 276ps3.
4. Forman, Sandra M., Andrew W. Lo, Monica Shilling, and Grace K. Sweeney (2015), Funding Translational Medicine via Public Markets: The Business Development Company, *Journal of Investment Management* 13 (4), 9–32.
5. Getmansky, Mila, Peter A. Lee, and Andrew W. Lo (2015), Hedge Funds: A Dynamic Industry in Transition, *Annual Review of Financial Economics* 7 (1), 483–577.

## **Publications, Most Recent 5 Years (continued):**

### *Refereed Journal Articles*

6. Levin, Simon A., and Andrew W. Lo (2015), Opinion: A New Approach to Financial Regulation, *Proceedings of the National Academy of Sciences* 112 (41), 12543–12544.
7. Li, William, Pablo D. Azar, David Larochelle, Phil Hill, and Andrew W. Lo (2015), Law Is Code: A Software Engineering Approach to Analyzing the United States Code, *Journal of Business & Technology Law* 10 (2), 297–374.
8. Azar, Pablo D., and Andrew W. Lo (2016), The Wisdom of Twitter Crowds: Predicting Stock Market Reactions to FOMC Meetings via Twitter Feeds, *Journal of Portfolio Management* 42 (5), 123–134.
9. Butaru, Florentin, Qingqing Chen, Brian Clark, Sanmay Das, Andrew W. Lo, and Akhtar Siddique (2016), Risk and Risk Management in the Credit Card Industry, *Journal of Banking & Finance* 72, 218–239.
10. Fojo, Tito, and Andrew W. Lo (2016), Price, Value, and the Cost of Cancer Drugs, *Lancet Oncology* 17 (1), 3–5.
11. Kim, Esther S., and Andrew W. Lo (2016), Business Models to Cure Rare Disease: A Case Study of Solid Biosciences, *Journal of Investment Management* 14 (4), 87–101.
12. Lo, Andrew W. (2016), What Is an Index?, *Journal of Portfolio Management* 42 (2), 21–36.
13. Lo, Andrew W. (2016), The Gordon Gekko Effect: The Role of Culture in the Financial Industry, *FRBNY Economic Policy Review* 22 (1), 17–42.
14. Lo, Andrew W., Tomas J. Philipson, and Andrew C. von Eschenbach (2016), Health, Wealth, and the 21st Century Cures Act, *JAMA Oncology* 2 (1), 17–18.
15. Lo, Andrew W., and Gary Pisano (2016), Lessons From Hollywood: A New Approach to Funding R&D, *Sloan Management Review* 57 (2), 47–57.
16. Lo, Andrew W., and Roger M. Stein (2016), TRC Networks and Systemic Risk, *Journal of Alternative Investments* 18 (4), 52–67.
17. Montazerhodjat, Vahid, John J. Frishkopf, and Andrew W. Lo (2016), Financing Drug Discovery via Dynamic Leverage, *Drug Discovery Today* 21 (3), 410–414.
18. Montazerhodjat, Vahid, David M. Weinstock, and Andrew W. Lo (2016), Buying Cures versus Renting Health: Financing Health Care with Consumer Loans, *Science Translational Medicine* 8 (327), 327ps6.
19. Burnham, Terence C., Samuel Huang, and Andrew W. Lo (2017), Pricing for Survival in the Biopharma Industry: A Case Study of Acthar Gel and Questcor Pharmaceuticals, *Journal of Investment Management* 15 (4), 69–91.

## Publications, Most Recent 5 Years (continued):

### *Refereed Journal Articles*

20. Cao, Charles, Grant Farnsworth, Bing Liang, and Andrew W. Lo (2017), Return Smoothing, Liquidity Costs, and Investor Flows: Evidence from a Separate Account Platform, *Management Science* 63 (7), 2233–2250.
21. Das, Sonya, and Andrew W. Lo (2017), Re-Inventing Drug Development: A Case Study of the I-SPY 2 Breast Cancer Clinical Trials Program, *Contemporary Clinical Trials* 62, 168–174.
22. Kim, Esther S., Paige M. C. Omura, and Andrew W. Lo (2017), Accelerating Biomedical Innovation: A Case Study of the SPARK Program at Stanford University, School of Medicine, *Drug Discovery Today* 22 (7), 1064–1068.
23. Lo, Andrew W. (2017), Moore’s Law vs. Murphy’s Law in the Financial System: Who’s Winning?, *Journal of Investment Management* 15 (1), 17–38.
24. Lo, Andrew W., and Alexander Remorov (2017), Stop-Loss Strategies with Serial Correlation, Regime Switching, and Transaction Costs, *Journal of Financial Markets* 34, 1–15.
25. Montazerhodjat, Vahid, Shomesh E. Chaudhuri, Daniel J. Sargent, and Andrew W. Lo (2017), Use of Bayesian Decision Analysis to Minimize Harm in Patient-Centered Randomized Clinical Trials in Oncology, *JAMA Oncology* 3 (9), e170123.
26. Thakor, Richard T., Nicholas Anaya, Yuwei Zhang, Christian Vilanilam, Kien Wei Siah, Chi Heem Wong, and Andrew W. Lo (2017), Just How Good an Investment Is the Biopharmaceutical Sector?, *Nature Biotechnology* 35 (12), 1149–1157.
27. Agrawal, Shreyash, Pablo D. Azar, Andrew W. Lo, and Taranjit Singh (2018), Momentum, Mean-Reversion, and Social Media: Evidence from StockTwits and Twitter, *Journal of Portfolio Management* 44 (7), 85–95.
28. Brennan, Thomas J., Andrew W. Lo, and Ruixun Zhang (2018), Variety Is the Spice of Life: Irrational Behavior as Adaptation to Stochastic Environments, *Quarterly Journal of Finance* 8 (3), 55–108.
29. Cao, Charles, Bing Liang, Andrew W. Lo, and Lubomir Petrasek (2018), Hedge Fund Holdings and Stock Market Efficiency, *Review of Asset Pricing Studies* 8 (1), 77–116.
30. Chaudhuri, Shomesh E., Martin P. Ho, Telba Irony, Murray Sheldon, and Andrew W. Lo (2018), Patient-Centered Clinical Trials, *Drug Discovery Today* 23 (2), 395–401.
31. Das, Sonya, Raphaël Rousseau, Peter C. Adamson, and Andrew W. Lo (2018), New Business Models to Accelerate Innovation in Pediatric Oncology Therapeutics: A Review, *JAMA Oncology* 4 (9), 1274–1280.
32. Lo, Andrew W., H. Allen Orr, and Ruixun Zhang (2018), The Growth of Relative Wealth and the Kelly Criterion, *Journal of Bioeconomics* 20 (1), 49–67.

## Publications, Most Recent 5 Years (continued):

### Refereed Journal Articles

33. Ram, Archana, and Andrew W. Lo (2018), Is Smaller Better? A Proposal to Use Bacteria for Neuroscientific Modeling, *Frontiers in Computational Neuroscience* 12 (7). <https://doi.org/10.3389/fncom.2018.00007>.
34. Aït-Sahalia, Yacine, Andrew W. Lo, and Whitney K. Newey (2019), Annals Issue in Honor of Jerry Hausman: Editors' Introduction, *Journal of Econometrics* 211 (1), 1–3.
35. Angus, Derek C., Brian M. Alexander, Scott Berry, Meredith Buxton, Roger Lewis, Melissa Paoloni, Steven A. R. Webb, Steven Arnold, Anna Barker, Donald A. Berry, Marc J. M. Bonten, Mary Brophy, Christopher Butler, Timothy F. Cloughesy, Lennie P. G. Derde, Laura J. Esserman, Ryan Ferguson, Louis Fiore, Sarah C. Gaffey, J. Michael Gaziano, Kathy Giusti, Herman Goossens, Stephane Heritier, Bradley Hyman, Michael Krams, Kay Larholt, Lisa M. LaVange, Philip Lavori, Andrew W. Lo, Alexander J. London, Victoria Manax, Colin McArthur, Genevieve O'Neill, Giovanni Parmigiani, Jane Perlmutter, Elizabeth A. Petzold, Craig Ritchie, Kathryn M. Rowan, Christopher W. Seymour, Nathan I. Shapiro, Diane M. Simeone, Bradley Smith, Bradley Spellberg, Ariel Dora Stern, Lorenzo Trippa, Mark Trusheim, Kert Viele, Patrick Y. Wen, and Janet Woodcock (2019), Adaptive Platform Trials: Definition, Design, Conduct and Reporting Considerations, *Nature Reviews Drug Discovery* 18 (10), 797–807.
36. Chaudhuri, Shomesh E., Katherine Cheng, Andrew W. Lo, Shirley Pepke, Sergio Rinaudo, Lynda Roman, and Ryan Spencer (2019), A Portfolio Approach to Accelerate Therapeutic Innovation in Ovarian Cancer, *Journal of Investment Management* 17 (2), 5–16.
37. Chaudhuri, Shomesh E., and Andrew W. Lo (2019), Dynamic Alpha: A Spectral Decomposition of Investment Performance Across Time Horizons, *Management Science* 65 (9), 4440–4450.
38. Das, Sonya, Samuel Huang, and Andrew W. Lo (2019), Acceleration of Rare Disease Therapeutic Development: A Case Study of AGIL-AADC, *Drug Discovery Today* 24 (3), 678–684.
39. Hasanhodzic, Jasmina, and Andrew W. Lo (2019), On Black's Leverage Effect in Firms with No Leverage, *Journal of Portfolio Management* 46 (1), 106–122.
40. Hull, John, Andrew W. Lo, and Roger M. Stein (2019), Funding Long Shots, *Journal of Investment Management* 17 (4), 1–33.
41. Isakov, Leah, Andrew W. Lo, and Vahid Montazerhodjat (2019), Is the FDA Too Conservative or Too Aggressive?: A Bayesian Decision Analysis of Clinical Trial Design, *Journal of Econometrics* 211 (1), 117–136.
42. Lo, Andrew W. (2019), Comment on Michael I. Jordan's "Artificial Intelligence—The Revolution Hasn't Happened Yet," *Harvard Data Science Review* 1 (1). <https://doi.org/10.1162/99608f92.9f99661b>.

## Publications, Most Recent 5 Years (continued):

### Refereed Journal Articles

43. Lo, Andrew W., Kien Wei Siah, and Chi Heem Wong (2019), Machine Learning with Statistical Imputation for Predicting Drug Approval, *Harvard Data Science Review* 1 (1). <https://doi.org/10.1162/99608f92.5c5f0525>.
44. Lo, Andrew W., and Richard T. Thakor (2019), Risk and Reward in the Orphan Drug Industry, *Journal of Portfolio Management* 45 (5), 30–45.
45. Siah, Kien Wei, Sean Khozin, Chi Heem Wong, and Andrew W. Lo (2019), Machine-Learning and Stochastic Tumor Growth Models for Predicting Outcomes in Patients With Advanced Non–Small-Cell Lung Cancer, *JCO Clinical Cancer Informatics* 3, 1–11.
46. Wong, Chi Heem, Kien Wei Siah, and Andrew W. Lo (2019), What Are the Chances of Getting a Cancer Drug Approved?, *DIA Global Forum*, May. <http://bit.ly/2pUuBW5>.
47. Wong, Chi Heem, Kien Wei Siah, and Andrew W. Lo (2019), Estimation of Clinical Trial Success Rates and Related Parameters, *Biostatistics* 20 (2), 273–286.
48. Xu, Qingyang, and Andrew W. Lo (2020), Fair and Responsible Drug Pricing: A Case Study of Radius Health and *abaloparatide*, *Journal of Investment Management* 18 (1), 90–98.
49. Wong, Chi Heem, Kien Wei Siah, and Andrew W. Lo (2020), Estimating Probabilities of Success of Clinical Trials for Vaccines and Other Anti-Infective Therapeutics, *Harvard Data Science Review*, <https://hdsr.mitpress.mit.edu/pub/np0pr4j>.
50. Xu, Qingyang, Shomesh Chaudhuri, Danying Xiao, and Andrew W. Lo (2020), Bayesian Adaptive Clinical Trials for Anti-Infective Therapeutics During Epidemic Outbreaks, *Harvard Data Science Review*, <https://hdsr.mitpress.mit.edu/pub/non4rfk6>.
51. Hasanhodzic, Jasmina, Andrew W. Lo, and Emanuele Viola, Is It Real or Is It Randomized?: A Financial Turing Test, to appear in *Journal of Portfolio Management*.
52. Vasileva, Detelina, Larry Norton, Marc Hurlbert, and Andrew W. Lo, Measuring the Economic and Academic Impact of Philanthropic Funding: The Breast Cancer Research Foundation, to appear in *Journal of Investment Management*.
53. Lo, Andrew W., Alexander Remorov, and Zied Ben Chaouch, Measuring Risk Preferences and Asset-Allocation Decisions: A Global Survey Analysis, to appear in *Journal of Investment Management*.

### Non-Refereed Articles

1. Jung, Edward, and Andrew W. Lo (2015), Megafunding Drug Research, *Project Syndicate*, December 9. <http://bit.ly/1ORK2m6>.
2. Lo, Andrew W. (2015), The Wisdom of Crowds vs. the Madness of Mobs, In *Handbook of Collective Intelligence*, edited by Thomas W. Malone and Michael S. Bernstein, 21–38.

## Publications, Most Recent 5 Years (continued):

### Non-Refereed Articles

3. Lo, Andrew W. (2015), Where To From Here?: Financial Regulation 2.0, In *The New International Financial System: Analyzing the Cumulative Impact of Regulatory Reform*, edited by Douglas D. Evanoff, Andrew G. Haldane, and George G. Kaufman, 569–577.
4. Leibowitz, Martin, Andrew W. Lo, Robert C. Merton, Stephen A. Ross, and Jeremy Siegel (2016), Q Group Panel Discussion: Looking to the Future, *Financial Analysts Journal* 72 (4), 17–25.
5. Levin, Simon, and Andrew W. Lo (2016), What Can Mother Nature Teach Us About Managing Financial Systems, *The Christian Science Monitor*, August 22. <https://www.csmonitor.com/Science/Complexity/2016/0822/What-can-Mother-Nature-teach-us-about-managing-financial-systems>.
6. Lo, Andrew W. (2016), Imagine If Robo Advisers Could Do Emotion, *Wall Street Journal*, June 6. <https://blogs.wsj.com/experts/2016/06/06/the-one-ability-robo-advisers-are-still-missing/>.
7. Lo, Andrew W., and David Weinstock (2016), ‘Health Care Loans’ for Hep C Cure, *Boston Globe*, February 26. <https://www.bostonglobe.com/opinion/2016/02/24/health-care-loans-for-hep-cure/HULzBaQSXoJrSQvx22zttN/story.html>.
8. Lo, Andrew W. (2017), Discussion: New Directions for the FDA in the 21st Century, *Biostatistics* 18 (3), 404–407.
9. Lo, Andrew W. (2017), Opinion: This is Your Brain on Stocks, *MarketWatch*, June 3. <https://www.marketwatch.com/story/this-is-your-brain-on-stocks-2017-06-02>.
10. Kosik, Kenneth S., and Andrew W. Lo (2018). Alzheimer’s Disease is About to Become a Crisis. Here’s how California Could Lead, *Sacramento Bee*, May 22. <https://www.sacbee.com/opinion/california-forum/article211669289.html>.
11. Lo, Andrew W. (2018), If Regulations Don’t Bend, They’ll Break, *RISK*, July 2.
12. Lo, Andrew W. (2018), Why Robo-Advisors Need Artificial Stupidity, *RISK*, July 20.
13. Lo, Andrew W. (2018), Financial Risks Don’t Go on Holiday, *RISK*, August 20.
14. Lo, Andrew W. (2018), Cryptocurrencies: King’s Ransom or Fool’s Gold?, *RISK*, October 2.
15. Lo, Andrew W. (2018), All the News that’s Fit to Print, *RISK*, October 25.
16. Lo, Andrew W. (2018), Doing Well by Doing Good, *RISK*, December 12.
17. Kim, Esther, and Andrew W. Lo (2019), Venture Philanthropy: A Case Study of the Cystic Fibrosis Foundation, April 23. Available at SSRN: <https://ssrn.com/abstract=3376673> or <http://dx.doi.org/10.2139/ssrn.3376673>.

## **Publications, Most Recent 5 Years (continued):**

### *Books, Monographs, and Reviews*

1. Lo, Andrew W. (2017), *Adaptive Markets: Financial Evolution at the Speed of Thought*, Princeton University Press.
2. Lo, Andrew W., and Ruixun Zhang (2018), *Biological Economics*, edited volume, Edward Elgar Publishing.
3. Lo, Andrew W. (2018), Data Rich: A Review of *Reinventing Capitalism in the Age of Big Data* by Viktor Mayer-Schönberger and Thomas Ramge, *Science* 359 (6376), 644.
4. Lo, Andrew W. (2018), The Visible Hand: A Review of *The Guidance of an Enterprise Economy* by Martin Shubik and Eric Smith, *Accounting, Economics, and Law: A Convivium*. <https://doi.org/10.1515/ael-2018-0012>.
5. Chaudhuri, Shomesh, and Andrew W. Lo, *Healthcare Finance*, to be published by Princeton University Press.
6. Lo, Andrew W., and Ruixun Zhang, *The Adaptive Markets Hypothesis*, Clarendon Lectures in Finance, to be published by Oxford University Press.
7. Lo, Andrew W., and Stephen R. Foerster, *In Pursuit of the Perfect Portfolio: Stories and Voices for Investment Geniuses and Insights for Your Investments*, forthcoming.

### *Working Papers and Research in Progress*

1. Spectral Portfolio Theory, with Shomesh E. Chaudhuri.
2. Competition and R&D Financing Decisions: Evidence from the Biopharmaceutical Industry, with Richard Thakor.
3. Optimal Financing for R&D Intensive Firms, with Richard Thakor.
4. Sharing R&D Risk in Healthcare via FDA Hedges, with Adam Jorring, Tomas Philipson, Manita Singh, and Richard Thakor.
5. Algorithmic Models of Investor Behavior, with Alexander Remorov.
6. Contagion and the Evolutionary Survival of Diverse Investment Strategies, with David Hirshleifer and Ruixun Zhang.
7. Temporal Averaging and Nonstationarities in Financial Time Series Analysis, with Whitney Newey.
8. Bayesian Adaptive Patient-Centered Clinical Trials, with Shomesh E. Chaudhuri.
9. Collaboration vs. Competition: Increasing the Efficiency of Drug Development, with Michael Goldberg and Jonathan Vu.
10. Financing Vaccines for Global Health Security, with Jonathan Vu, Ben Kaplan, Shomesh E. Chaudhuri, and Monique Mansoura.

## **Publications, Most Recent 5 Years (continued):**

### *Working Papers and Research in Progress*

11. When Do Investors Freak Out?: Machine Learning Predictions of Panic Selling, with Daniel Elkind, Kathryn Kaminski, Kien Wei Siah, and Chi Heem Wong.
12. Addressing Inefficiencies in the Biopharma Industry: A Case Study of Roivant Sciences, with John Ceremsak.
13. Measuring Horizon-Specific Systematic Risk in Spectral Betas, with Federico Bandi, Shomesh E. Chaudhuri, and Andrea Tamoni.
14. Use of Bayesian Decision Analysis to Maximize Value in Patient-Centered Randomized Clinical Trials in Parkinson's Disease, with Shomesh E. Chaudhuri, Brett Hauber, Brennan Mange, Mo Zhou, Stephanie Christopher, Dawn Bardot, Margaret Sheehan, Anne Donnelly, Lauren McLaughlin, Brittany Caldwell, Heather L. Benz, Martin Ho, Anindita Saha, Katrina Gwinn, and Murray Sheldon.
15. Profiting Patients and Payers: The Case for Repurposed Generic Drugs, with Marcus C. Parrish and Kevin V. Grimes.
16. The Impact of University Intellectual Property: A Case Study of MIT Life Sciences Technology Licensing, with Samuel Huang, Kien Wei Siah, Detelina Vasileva, Shirley Chen, and Lita Nelsen.
17. Evolution with Correlated Reproduction, with Nihal Koduri.
18. Financially Adaptive Clinical Trials via Option Pricing Analysis, with Shomesh E. Chaudhuri.
19. An Empirical Evaluation of Tax-Loss Harvesting Alpha, with Shomesh E. Chaudhuri and Terence C. Burnham.
20. Secure Cyber Risk Computation, with Leo de Castro, Taylor Reynolds, Vinod Vaikuntanathan, Daniel Weitzner, Fransisca Susan Wu, and Nicolas Zhang.
21. Accelerating Therapeutic Innovation in Glioblastoma Treatments via NBTS Venture Fund, with Kien Wei Siah, Qingyang Xu, Kirk Tanner, Olga Futer, and John Frishkopf.
22. Explaining Machine Learning Predictions: Rationales and Effective Modifications, with Randall Davis, Sudhanshu Mishra, Manish Singh, and Nicholas Wu.
23. Financing correlated drug development projects, with Kien Wei Siah.
24. BridgeBio: A Portfolio Theory Proof-of-Concept, with Neil Kumar.
25. Paying Off the Competition: Market Power and Innovation Incentives, with Xuelin Li and Richard Thakor.



## Professional Activities:

Co-Editor of	Annual Review of Financial Economics
Advisory Editor of	Financial Analysts Journal Journal of Investment Management Journal of Investment Consulting Journal of Portfolio Management
Associate Editor of	Harvard Data Science Review
Referee for (last 24 months)	Harvard Data Science Review Journal of Financial Economics Journal of Portfolio Management Nature Biotechnology Proceedings of the National Academy of Sciences Science Translational Medicine
Member of	American Association for Cancer Research American Economic Association American Finance Association American Statistical Association Institute of Electrical and Electronics Engineers Institute of Mathematical Statistics Society of Industrial and Applied Mathematics
Fellow of	Academia Sinica American Academy of Arts and Sciences Econometric Society Society of Financial Econometrics
Non-Profit Activities (most recent 5 years)	Member, BrightEdge Impact Fund Advisory Board (2019–present) Member, Annual Reviews Board of Directors (2019–present) Senior Fellow, Milken Institute (2014–present) Member, Beth Israel Deaconess Medical Center Board of Overseers (2009–present) Member, FINRA Economic Advisory Committee (2001–present) Director, MIT Whitehead Institute for Biomedical Research (2015–2019) Member, Academic Advisory Board, Consortium for Systemic Risk Analytics (2013–2016) Member, Board on Mathematical Sciences and their Applications, National Academy of Sciences (2012–2018)

## Professional Activities (continued):

### Government Activities (most recent 5 years)

Member, NIH NCATS Advisory Council, pending confirmation (2019–present)  
Member, Market Risk Advisory Committee, Commodity Futures Trading Commission (2015–2017)  
Member, Equity Market Structure Advisory Committee, Securities and Exchange Commission (2015–2017).  
Member, Financial Research Advisory Council, OFR (2012–2016)  
Member, NY Fed Financial Advisory Roundtable (2011–2019)

### Commercial Activities (most recent 5 years)

Founder and Chairman, QLS Advisors (2019–present)  
Member, Thalès Advisory Board (2019–present)  
Chairman Emeritus and Senior Advisor, AlphaSimplex Group (2018–present)  
Director, Roivant Sciences (2016–present)  
Advisor, BridgeBio Pharma (2015–present)  
Member, Competitive Market Advisory Council, Chicago Mercantile Exchange (2013–present)  
Advisor, Algorand (2018–2019)  
Advisor, Thasos (2011–2019)  
Founder, Chairman, and Chief Investment Strategist, AlphaSimplex Group (1999–2017)