Ricky Alyn Cooper, Ph.D.
IIT-Stuart
565 W. Adams St, #420
Chicago, IL 60661
Email: rcooper3@iit.edu

Employment Experience:

Illinois Institute of Technology, Chicago, IL

May 2023 to present—Director PhD-Finance
December 2022 to present—Director of Master of Science in Financial Economics
August 2022 to present—Director of Master of Science in Finance
May 2017 to present—Associate Professor of Finance
August 2011 to April 2017—Assistant Professor of Finance
August 2010 to July 2011—Senior Lecturer of Finance
January 2009 to July 2010—Adjunct Professor

2010-2024 classes:

MSC 631—Theory of Finance I (PhD level class)
MSC 633—Theory of Finance II (PhD level class)
MSF 584—Equity and Equity Derivative Trading (Masters level class)
MSF 546—Quantitative Portfolio Management (Masters and PhD)
MSF 545—Fixed Income Portfolio Management (Masters and PhD)
MSc 511—Mathematical Economics I (Masters and PhD)
MSc 514 –Mathematical Economics II (Masters and PhD)
MSF 504—Equity Valuation and Portfolio Management (Masters level class)
ECON 211—Principles of Economics (Undergraduate)
BUS 454—Investments (Undergraduate)

- Currently supervising six PhD dissertation projects
  --Chaired 17 completed PhD dissertations

- **2015 Stuart School of Business Excellence in teaching award winner**
- **Member of University Benefits Committee**
- **Chair of the University Finance Committee**
- **Several Business School committees**

Patomak Partners, Washington, DC (and as independent agent)

July 2015 to present—Senior Consultant

- Team member on consulting projects to large investment managers and financial market players on risk systems, controls, and attribution.

Vanderbilt University, Nashville, TN

March 2001 to June 2019—Adjunct Associate Professor of Finance, Owen Graduate School of Management

- Teach one MBA/MSF short class (*Active Portfolio Management*) each year on theory and implementation of quantitative portfolio management techniques.

Xambala Inc., San Jose, CA and Chicago, IL

August 2007 to February 2011—Director of Risk Management

Duties:

- Design and supervise implementation of ultra high frequency risk management system for equities including, tick speed portfolio optimization, second slice attribution, Modified Kelly Criterion based risk allocation, and GARCH volatility forecast models
- Design high frequency factor testing criteria and prototype alpha building using modifications of the edge ratio criterion, and various clustering and time series techniques
- Lead teams of Statisticians, Software Engineers, and Finance people in 2 countries in developing coherent strategies and systems

CTS Strategic Investments, LLC, Chicago, IL

January 2003 to May 2007—Chief Investment Officer and Founding Partner

- Leader of a quantitative investment team running successful Large Cap, Small Cap, and Custom Benchmarked assets. Achieved audited 1.75 Information Ratio over four years with a very long term investment horizon
- Developed and Implemented the factor testing system, the portfolio construction and backtesting system, the attribution system, and the portfolio analytics system, using all proprietary algorithms and SAS software

Harris Investment Management, Chicago, IL

April 1999 to December 2002—Senior Partner and Director of Analytic Research

- Responsible for a team of six researchers developing all equity and fixed income models in use at Harris Investment Management and the Harris Bank. Also, responsible for development and implementation of mixed fundamental and quantitative portfolio construction techniques
- Led development of the model precipitating a turnaround in the Large Capitalization Value Strategy—HIM's flagship product

Harvard University, Cambridge, MA

September 1995 to May 1999 —Lecturer in the Extension School

- Taught graduate level classes titled Investment Management and Quantitative Portfolio Management (one class each semester)

State Street Global Advisors, Boston, MA

November 1997 to March 1999 — Associate Director of Advanced Research Center

- Allocated approximately 15 projects, among a team of 18 researchers, located in four different sites (projects cover equity, fixed income, currency, and asset allocation)
- Led project teams working on U.S., European, and Global industry modeling (models of my design), working on pooled time series-cross sectional modeling (algorithms of my design), and working on leader analyst identification in U.S. equity modeling (joint research with Vanderbilt University)
- Lectured to government, professional, and institutional clientele, along with frequent participation in sales presentations

January 1997 to November 1997 — Portfolio Manager of Global Enhanced Equity Strategies

- Designed products for new group, specifically:
  - Portable Alpha – a fund of funds approach to enhancing returns
  - U.S. Industry modeling – a SUR regression framework model to supplement risk controlled stock selection by pre-specifying the over- and under- weight in each industry

January 1995 to January 1997— Portfolio Manager of Active International Strategies

- Managed quantitative portfolios against EAFE and MSCI-World benchmarks using both unrestricted and specially restricted universes

Wayne State University, Detroit, MI

August 1990 to December 1995—Assistant Professor of Finance and Business Economics

- Taught classes at both undergraduate and graduate levels
- Classes taught were Portfolio Management, Financial Management, and Derivative Securities
- Conducted research specializing in joining psychometric and econometric theory in financial modeling

Education:

Vanderbilt University, Nashville, TN

December 1990—Ph.D Finance
December 1988—M.B.A. Finance

- Dissertation titled "Risk Premia in Forward and Futures Markets" published June 1993 in Journal of Futures Markets
- Specialized Studies in Asset Pricing Models, and Econometric Modeling, with strong emphasis on Micro- and Macro- economic foundations

University of Chicago, Chicago, IL

June 1985—B.S. with General Honors, Mathematics

- Specialized in Optimization Theory and Numerical Analysis
- Also completed all classes in Economics major

Publications:

Refereed Journals:

[RJ25] "Combining Value, Profitability, and Momentum: The Details Matter" with Zixuan Jiao, *forthcoming in the* Journal of Portfolio Management

[RJ24] "The Pacifying Spike: High Frequency Trading and its Mitigating Influence on Volatility " with Shouhao Li and Ben Vanvliet, *forthcoming in the* Journal of Investing

[RJ23] "Knowledge Management and Capability Theory in Structured Products: Perspectives from Industry Professionals" with Seung Youn Cha (IIT), Ben Vanvliet (IIT), and Lizi Zhu (Northeastern Illinois University) Journal of Knowledge Management Practice Vol. 24(2) 2024

[RJ22] "R&D Premium: The Intangible Side of Value" with Li Cai (IIT) and Di He (Postdoc at ICBC China) Journal of Investing Vol. 32 No. 6 (2023) pp. 61-76

[RJ21] "A 'Quality' Quality Factor" with Zixuan Jiao (Morgan Stanley Asset Management), Journal of Portfolio Management Vol. 49, No. 5 (2023) pp. 58-69

[RJ20] "Competitive Advantage in Algorithmic Trading: a Behavioral Innovation Economics Approach" with Wendy Currie (Audencia) Jonathan Seddon (Audencia), and Ben Vanvliet (IIT) Review of Behavioral Finance Vol. 15, No.3 (2023) pp. 371-395

[RJ19] "Socially Responsible Investing and Factor Investing? Is there an Opportunity Cost?" with Li Cai (IIT) and Di He (Postdoc at ICBC China) Journal of Portfolio Management Vol. 48, No. 2 (2022) pp. 181-197

[RJ18] "A Retrospective Look: Phantom Liquidity and High Frequency Quoting" with Jesse Blocher (Vanderbilt), Jonathan Seddon (Audencia), and Ben Vanvliet (IIT) Journal of Trading Vol 13, No. 3 (2018) pp. 1-2

[RJ17] "How Does High Frequency Trading Affect Low Frequency Trading?" with K. Li (Beijing Normal) and B. Vanvliet (IIT) Journal of Behavioral Finance Vol 19 (2018) pp. 235-248

[RJ16] "Benchmarking Commodity Investments", with J. Blocher (Vanderbilt) and M. Molyboga (Efficient Capital Management) Journal of Futures Markets Vol 38 (2018) pp. 340-358

[RJ15] "High Frequency Trading and Conflict in the Markets" with J. Seddon (Audencia) and B. Vanvliet (IIT) Journal of Information Technology Vol 32, No. 3 (2017) pp. 270-282

[RJ14] "Black-Litterman, Exotic Beta, and Varying Efficient Portfolios: An Integrated Approach" with Marat Molyboga (Efficient Capital Management) Journal of Investment Strategies Vol. 6, No. 3 (2017) pp. 13-30

[RJ13] "Phantom Liquidity and High Frequency Quoting" with Jesse Blocher (Vanderbilt), Jonathan Seddon (Audencia), Ben Vanvliet (IIT), Journal of Trading Vol 11, No. 3 (2016) pp. 6-15

[RJ12] "The Mysterious Ethics of High Frequency Trading" with Michael Davis (IIT) and Ben Van Vliet (IIT), Business Ethics Quarterly (2016) Vol 26, No. 1 (2016) pp. 1-22

[RJ11] "Multi-Scale Capability: A Better Approach to Performance Measurement for Algorithmic Trading" with Michael Ong (IIT) and Ben van Vliet (IIT) Algorithmic Finance Vol. 4, No. 1,2 (2015) pp. 53-68

[RJ10] "Expected Return in High Frequency Trading" with Ben Van Vliet (IIT), Journal of Trading vol. 10, No. 2 (Spring 2015) pp. 32-40

[RJ9] "The Rationale for AT9000: An ISO 9000-Style Quality Management System Standard for Automated and Algorithmic Trading" with Ben Van Vliet (IIT), Andrew Kumiega (IIT), and Jim Northey (FIX Protocol, LTD.) Journal of Trading vol. 8, No. 3 (Summer 2013) pp. 102-106

[RJ8] "Adding Derivatives to Absolute Return Attribution" with Tingting Li (IIT) Journal of Performance Measurement Vol. 17, No. 3 (Spring 2013) pp. 19-26, *2013* ***Dietz Honorable Mention Award***

[RJ7] "Absolute Return Equity Risk Attribution and Forecasting" with Tingting Li (IIT) Journal of Performance Measurement Vol. 17, No. 2 (Winter 2013) pp. 46-60, *2013* ***Dietz Honorable Mention Award***

[RJ6] "High Frequency Equity Performance Attribution" with Tingting Li (IIT) Journal of Performance Measurement vol. 16, No. 3 (Spring 2012) pp. ***Reviewed in CFA Digest (2013) vol. 49 No 3***

[RJ5] "Whole Distribution Statistical Process Control in High Frequency Trading" with Ben van Vliet (IIT) Journal of Trading vol. 7, No. 2 (Spring 2012)

[RJ4] "Following the Leader: A Study of Leading vs. Following Analysts" Journal of Financial Economics vol. 61 (2001) pp. 383-416 (with Craig Lewis and Theodore Day), ***Winner of the 2001 JFE Paper of the year award in Asset Pricing and Investments***

[RJ3] "Information Technology Characteristics and Firms' Performance in the Financial Industry" Engineering Valuation and Cost Analysis vol. 1 (1998) pp. 243-254 (with Toni M. Somers)

[RJ2] "The Year End Effect in Junk Bond Prices" Financial Analysts Journal, vol. 50 no. 5 (1994) pp. 61-65 (with Joel M. Shulman)

[RJ1] "Risk Premia in the Forward and Futures Markets" Journal of Futures Markets, vol. 13 no. 4 (1993) pp. 357-372

Policy Papers:

[O1] "Precidian's Proposed ETF and the Possibility of Reverse Engineering" (2015) published in the Edgar archives at sec.gov available at: https://www.sec.gov/Archives/edgar/data/1396289/000114420415048013/v417803_40appa.htm

Conference Proceedings:

[CP2] "The Role of Government in the Regulation of Financial Markets–New Rules for New Players" Proceedings of the 23rd Americas Conference on Information Systems (AMCIS) (2017) (with Wendy L Currie, Jonathan Seddon, and Ben Van Vliet

[CP1] "Capital Structure Life Cycle: Static Process or Dynamic Evolution?" Proceedings of the International Conference on Establishment Surveys (1993) pp. 668-676 American Statistical Association (with Joel Shulman)

Book Chapters:

[Ch3] *"Ethics for Automated Finance"* chapter appearing in Handbook on Ethics in Finance Springer-Verlag (2020)

[Ch2] "Global Investing: Slicing the World into Meaningful Pieces" Recent Issues in Corporate Finance and Investments part of the *Advances in Financial Economics* Series, edited by Mark Hirschey, Kose John, and Anil Makhija, JAI Press (2000) pp. 73-104 (with Craig Lewis)

[Ch1] "Arbitrage", "Capital Asset Pricing Model", "Derivative Securities; three articles appearing in the Encyclopedia of Business, Gale Publishing, Detroit, MI (1995) pp. 51, 52, 163-165, 404-407

Trade Publications:

[TP2] "Enhanced Indexing: A Strategy Comes of Age" Enhanced Index Strategies for the Multi-Manager Portfolio edited by Brian Bruce, Institutional Investor Inc. (1998) pp. 20-24 (with Arlene Rockefeller)

[TP1] "Does Global Investing by Industry Make Sense?" Enhanced Index Strategies for the Multi-Manager Portfolio edited by Brian Bruce, Institutional Investor Inc. (1998) pp. 45-53

Presentations:

Academic Conferences:

"An Integrated Paradigm of the Behavior of High Frequency Traders," 7th International Conference of the Financial Engineering and Banking Society University of Strathclyde, Glasgow (2017) (with J. Seddon and B. Vanvliet)

"Financialization, High-Frequency Trading, and Price Discovery," Society for Economic Anthropology Conference, Financialization and Beyond: Debt, Money, Wealth, and the Capture of Value, University of Iowa (2017) with J. Seddon and B. Vanvliet

"Optimizing Entrepreneurial sustainability: a Societal Real Options Approach" The 6th Sustainability, Ethics and Entrepreneurship (SEE) Research Conference San Juan, Puerto Rico (2017) (with Nasarin Khalili and Cheryl Miller)

"Liquidity and Price Discovery: The Impact of High Frequency Trading" Conference on Banking & Finance University of Portsmouth UK, (2017) (with J. Blocher, R. Cooper, J. Seddon).

"The Evolution of High-frequency Trading and a Changing Market Structure: What Has Evolved from the Crash," 2016 INFINITI Conference on International Finance Trinity College Dublin (2016), (with J. Seddon and B. Vanvliet)

"Methodological Challenges in Critical Finance Studies: Designing a Research Agenda for Understanding Financial Markets," 4th Annual Ontology Workshop. Embodiment and Emotions: Ontological, Ethical, Epistemological and Methodological Considerations University of Liverpool (2016) (with J. Seddon and B. Vanvliet)

"The Capability Paradigm in Algorithmic Trading" 2015 IIT/Algorithmic Finance conference on High Frequency and Algorithmic Trading (2015) Illinois Institute of Technology (with B. Vanvliet)

"Phantom Liquidity and the Flash Boys" 11th Annual Meeting of the Financial Research Association Meeting (2014) Las Vegas (with J. Blocher and B. Vanvliet)

"How Does High Frequency Trading Affect Low Frequency Trading?" 2014 International Conference on Corporate Finance and Capital Markets hosted by the Academy of Financial Research (2014) China (with K. Li. and B. Vanvliet)

"Multi-scale Capability" Midwest Finance Association Annual Meeting (2014) Orlando (with B. Vanvliet and M. Ong)

"Factors of Mutual Fund Performance" Annual meeting of the Southern Finance Association (1994) with G. Wenchi Kao

"A Residual Income Approach to Consumer Mortgage Lending" American Real Estate Society Annual Meeting (1994) (with Joel Shulman)

"A Residual Income Approach to Consumer Mortgage Lending" American Real Estate Society Annual Meeting (1993) (with Joel Shulman)

"Capital Structure Life Cycle: Static Process or Dynamic Evolution" International Conference on Establishment Surveys (1993) sponsored by the American Statistical Association (with Joel Shulman and David Brophy)

"Capital Structure Life Cycle: Static Process or Dynamic Evolution" 4th Annual International Research Symposium on Small Firm Finance (1992) Hosted by the John F. Baugh Center for Entrepreneurship and the Department of Finance at Baylor University (with Joel Shulman and David Brophy)

"A Residual Income Approach to Consumer Debt Borrowing" 22nd Annual Financial Management Association Meeting (1992), (with Joel Shulman)

"Variance Ratio Tests of Random Walks in International Equity Market Returns" Annual Meeting of the Allied Social Science Associations (1992) sponsored by the African Finance Association (with Richard Ajayi)

Invited Presentations:
"Ethics and the Market" Research Seminar at Xi'an Jiao Tong University, Xi'an China (March 2019)

"Ethics and the Market" Research Seminar at Zhongnon University of Economics and Law, Wuhan China (March 2019)

"Ethics and the Market" Research Seminar (with honorarium) at Chunese University of Geosciences, Wuhan China (March 2019)

"Fusion and Confusion in the Stock Market" TEDxIIT presentation (April 2015) presented live and webcast, also available at Youtube.com

"Multi-Scale Capability and Prudence" Ohio University research seminar (February 2014)

Industry Presentations:
"Flash Boys" STAC Summit *(Securities' Technology Analysis Center)* Conference (Fall 2014)

"Forecasting volatility in High Frequency Trading" STAC Summit *(Securities' Technology Analysis Center)* Conference (Spring 2014)

"Country and Sector Selection Bias" <u>New Directions in Applying Quantitative Portfolio Investment Techniques</u> (1999) Sponsored by the Institute for Investment Research

"Residual Income Approach to Mortgage Lending" <u>Housing Finance Issues in Deflationary Markets</u> (1993) Sponsored by Fannie Mae and Wayne State University

Professional Service

<u>Algorithmic Finance</u>
(2024-present), Co-Editor in Chief

Referee for:
Journal of Information Technology
Journal of Futures Markets
Journal of Trading
Financial Analysts Journal
Journal of Banking and finance
Journal of Business Finance and Accounting

<u>Dissertation Committees</u> *(Chaired):*
Tian Tian, Chair of Committee, Final Defense , October 2023
Lizi Zhu, Chair of Committee. Final Defense, October 2023
Junji Jie, Chair of Committee, Final Defense, September 2022
Yue Chen, Chair of Committee, Final Defense, September 2022
Dan Zhang, Char of Committee, proposal defended, Final Defense, May 2022
Zixuan Jiao, Chair of Committee, Final Defense, April 2022
Seung Youn Cha, Chair of Committee, Final Defense, April 2021
Camila Llara Prado, Chair of Committee, Final Defense, March 2021
Chao Wang, Chair of Committee, Final Defense, May 2020
Shouhao Li, Chair of committee, Final Defense, April 2019

Miao Miao Pan, Chair of committee, Final Defense, November 2018
Junkai Qian, Chair of committee, Final Defense, November 2018
Yuanyuan Yang, Chair of committee, Final Defense, May 2018
Xinyi Ge, Chair of committee, Final Defense, May 2018
Wenyi Li, Chair of committee, Final Defense, May 2018
Tingting Li, Chair of committee, Final Defense, December 2015
Kun Li, Chair of committee, Final Defense, June 2015
Imir Arifi, Chair of committee, Final defense, May 2014

Professional Quotations:

Interview in "Automated Trader" Q1 2013, on education in the age of rapid model change
Quotation in Bloomberg/Business Week (online edition) April 2012
Quotation in Bloomberg/Business Week (online edition) September 2012

Session Chairs:

Annual Meeting of the Financial Markets Research Center, Vanderbilt University (2013) session chair, "*Financial Markets in Developing Countries*"

Committees:

Chair University Faculty Council, Finance Committee Chair (2021-present)
University Benefit Committee—(2016-present)
Graduate Studies Committee—(2017-2021)
University Faculty Council, Finance Committee (2016-2017) (2021-2022)
Faculty Development Committee (2017-2016, 2015-2016, and 2014-2015)
Curriculum Committee (2013-2014)
Student Affairs Committee (2012-2013)

Other Activities:

Co-Organizer of 2016 Finkl Lecture in Ethics and Finance (Sponsored Lecture at IIT with John Boatright as speaker)

Co-Organizer of 2015 IIT/Algorithmic Finance conference on High Frequency and Algorithmic trading (An International Conference)

AT-9000 project. Co-authored the rationale document regarding the need for an ISO-9000 style standard for the automated trading industry. Went with delegation to DC to talk to the CFTC. Also, work occasionally with Prof. Vanvliet on strategy for finishing the work of the ANSI subcommittee developing the AT-9000 documents.