

EUGENE NEDUV, PHD

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DATA SCIENTIST AND RISK RESEARCHER

CURRENT PROFESSIONAL SUMMARY

Data scientist focused on graph theory, statistical analysis, data visualization, community detection and financial networks.

Analyze correlation and other dependency networks and stress scenarios on such structures.

Relate changes in macro-economic data to market dynamics using generalized regression methods, evaluate impacts of macro-prudential stress tests on investment portfolios.

Study payments systems, propagation of defaults, liquidity risk due to cross-holdings and crowded trades.

Model systemic risk in financial-economic systems.

NETWORK SCIENCE – AGENT BASED MODELLING – STATISTICAL METHODS

SYSTEMIC RISK – MACRO PRUDENTIAL STRESS TESTING – VOLATILITY AND CORRELATION MODELING

FINANCIAL NETWORK ANALYTICS – 475 Park Ave South, New York

June 2014 - current

VP SOLUTIONS

Apply network science methods to complex financial systems that define global international economic landscape. In order to understand inter-related nature of contemporary financial systems we need to describe and analyze the links between different assets and industry sectors they affect. Financial Network Analytics has been on the front line implementing cutting edge research into industry applications that advance participants understanding of market dynamics, risks and vulnerabilities. Applications include correlation networks, cascading fire sales due to overlapping portfolio, payment default risk and payment simulators, macro prudential stress testing and portfolio optimization.

CORRELATION NETWORKS – COMMUNITY DETECTION – NETWORK VISUALIZATIONS – CROSS-HOLDING NETWORKS – CONTAGION MODELING – PAYMENT SYSTEMS – GRAPH THEORY – ADAPTIVE STRESS TESTING

COLUMBIA UNIVERSITY, INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH DEPARTMENT

500 West 120th Street, New York

Feb 2016 – current

ADJUNCT RESEARCH SCIENTIST

Conduct research on financial stability and systemic risk, study counterparty exposures in payment networks.

SYSTEMIC RISK

UNIVERSITY OF CAMBRIDGE, CENTRE FOR RISK STUDIES, JUDGE SCHOOL OF BUSINESS

14 Trumpington Street, Cambridge, UK

Feb 2015 – April 2016

RISK RESEARCHER

Conducted research on Eurozone Meltdown, Sustained High Inflation, Real Estate Bubble, De-Americanization of Economy and Climate Change global impact risk scenarios. Modeled contagion mechanisms of bubbles bursting in one country spreading across the world and affecting global economy. Evaluated long term portfolio impacts responses to above scenarios identifying the most affected asset classes by region. Designed mitigation strategies for minimizing portfolio impacts. Wrote historical case studies for the scenarios and designed early warning systems to detect bubble formations. Implemented all the analysis as Financial Network Analytics solutions.

GLOBAL IMPACT RISK SCENARIOS – LONG TERM FINANCIAL MODELING – EARLY WARNING SYSTEMS – HISTORICAL FINANCIAL CRISES – EUROZONE MELTDOWN – HOUSING BUBBLE – SUSTAINED HIGH INFLATION – DE-AMERICANIZATION OF ECONOMY

QF RESEARCH – 121 Mulberry St, New York, NY

Jan 2010 – current

PRINCIPAL

Provide quantitative research on trends in financial time series, volatility and correlation trading, portfolio optimization and asset allocation for hedge funds in New York and Brazil. Conduct model validations, analyze VAR for multi-asset portfolios, design stress tests and customized risk and performance reports. Implement and customize third party risk systems such as RiskMetrics and Imagine software. Design custom reporting and analytics. Past works includes performance attributions such as Brinson, time and money weighted returns, performance metrics such as Sharpe and Sortino ratios.

ASSET ALLOCATION – VAR - STRESS TESTS - PERFORMANCE METRICS - BRINSON ATTRIBUTIONS - MODIFIED DIETZ RETURN - MENCHERO AND CARINO SMOOTHING - IMAGINE SOFTWARE - RISKMETRICS

PREVIOUS PROFESSIONAL EXPERIENCE

RDJ INVESTMENT GROUP, LTD – Rio de Janeiro, Brazil

March 2013 – Aug 2014

BOARD OF DIRECTORS

RDJ Investment Group, based in New York and Rio de Janeiro, provided expertise in manager selection in Brazil.

INVESTMENT ADVISORY – DUE DILIGENCE – RISK ASSESSMENT – PORTFOLIO CONSTRUCTION

RED SWAN RISK, LLC – 41E 42 Street, New York, NY

July 2011 – June 2014

RISK MANAGEMENT CONSULTANT

Provided custom reporting, model validation and financial analytics to Hedge Funds, Investment Banks and Fund of Funds.

Implemented risk analytics and reporting based on RiskMetrics and Imagine Software solutions. Built seamless risk technology as a complete system that enables daily risk assessment and facilitates decision making process.

MODEL VALIDATION – RISK REPORTING – FINANCIAL TECHNOLOGY DEVELOPMENT

UNIVERSIDADE FEDERAL FLUMINENSE, PHYSICS DEPARTMENT

Rio de Janeiro area, Brazil

Nov 2010 – Nov 2011

VISITING PROFESSOR

Researched applications of econo-physics to financial markets and advised a hedge fund in Sao Paulo on correlation and volatility trading

COMPLEX SYSTEMS

IMAGINE SOFTWARE, INC. – 233 Broadway, New York, NY

Oct 2005 – Dec 2009

SENIOR QUANTITATIVE RISK ANALYST

Provided consulting services and solved risk analysis and derivatives pricing issues for hedge fund and investment bank clients such as Credit Suisse, Deutsche Bank, Millennium Management, Jefferies, SunTrust, Woodbine Capital, Fortress, WR Investments and others.

Worked on risk and quantitative analytics implementation projects in North America, Europe, Asia and Latin America. Conducted model validations for equity, FX and interest rate derivatives. Implemented stress tests for various market factors in multiple asset portfolios. Designed methodology and analytics for Dynamic Hedging, P&L Attributions, Monte Carlo Simulations and Multifactor Risk Scenarios.

VAR – OPTION P&L ATTRIBUTIONS – INTEREST RATE DERIVATIVES – VARIANCE AND VOLATILITY SWAPS – DYNAMIC HEDGING

RESEARCH CONSULTANT

Advised Banc of America Securities on algorithmic trading. Calibrated parameters of optimal trading strategies for liquidation of large single-asset portfolios. Optimized combination of volatility risk and market impact costs.

EXECUTION ALGORITHMS – MARKET IMPACT

POSTDOCTORAL FELLOW

Conducted research on functional optimization in Hamiltonian Mechanics. Proved existence of periodic solutions in convex Hamiltonian systems using symplectic invariants.

MATHEMATICS INSTRUCTOR

Instructed classes in Topology, Dynamical Systems, Mathematical Methods in Economics

EDUCATION

Ph.D. in Mathematics, Columbia University. Thesis: Hamiltonian Mechanics	Sept 1996 - May 2002
MS in Mathematics, University of Chicago	Oct 1994 - May 1996
BA in Mathematics (cum laude), New York University	Sept 1992 - May 1994

HONORS AND AWARDS

Visiting Scholar Grant at Humboldt University Berlin	Summer 2002, 2003
Visiting Scholar Grant at Paris Dauphine	Summer 2001
Visiting Scholar Grant at Scuola Normale, Pisa	Summer 1999, 2000
Best Graduating Senior in Mathematics Prize at NYU	1994
National Dean's List Placement	1994

PUBLICATIONS

Unhedgeable Risk: How Climate Change Sentiment Impacts Investment, Cambridge Centre for Risk Studies, University of Cambridge Judge Business School, 2015

High Inflation World Financial Catastrophe Stress Test, Cambridge Centre for Risk Studies, University of Cambridge Judge Business School, 2015

Eurozone Meltdown Financial Catastrophe Stress Test, Cambridge Centre for Risk Studies, University of Cambridge Judge Business School, 2015

Dollar Deposited Financial Catastrophe Stress Test, Cambridge Centre for Risk Studies, University of Cambridge Judge Business School, 2015

Global Property Crash Financial Catastrophe Stress Test, Cambridge Centre for Risk Studies, University of Cambridge Judge Business School, 2015

Prescribed minimal period problems for convex Hamiltonian systems via Hofer-Zehnder symplectic capacity, Mathematische Zeitschrift January 2001, Volume 236, Issue 1, pp 99-112

TECHNICAL PROFICIENCIES

Matlab, Excel, R, Python

Imagine Software and RiskMetrics application platforms, SQL

LANGUAGE PROFICIENCIES

Fluent in English, Portuguese, Italian, French, Spanish, and Russian

PERSONAL INTERESTS

International travel, languages, art, cooking