R E S U M E

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PROFESSIONAL EXPERIENCE

2018-current: **Matrics** (price and risk analytics for the buy-side, AI, data science): Consultant
Risk modelling, market regimes, long-term investment strategies
Assets and derivatives pricing and analytics
Portfolio risk/return analysis and optimization

2015-current: **Datacore** (financial indices, New York): Founding partner, Research Director

1999-2015: **Riskdata** (risk management software, Paris): Founding partner, Research Director

EXVaR®: Design and implementation of Euronext clearing risk management system. Cross-asset class Monte-Carlo simulation, including crisis simulation, of all securities traded at Euronext to assess the default risk of its members in case of margin exceeding (at the time the first external system with such features).

Fofix® and ***Hedgix®*** Hedge fund risk analysis. Stress VaR. Construction of portfolios of hedge funds for Funds of Funds, asset managers, pension funds and investors. Fund selection.

Portfolio Designer optimization with risk and position limits, based on Extreme Risk Bugeting

Risk Ticker® Station: Conception and design of an internet-based Monte-Carlo simulation service of worldwide security markets. Multi-asset multi-currency VaR, Shock VaR.

CPM (Cross Product Margining) Margin calculation system for Citigroup Prime Brokerage. Global cross-asset class margining system with ensured compatibility with LCH margining system.
Details on www.riskdata.com

1993-2000: Independent Consultant in Capital Markets and Banking Industry

Founded **Riskdata Inc**. (consulting company, New York)
Works for **Citibank** (2004-11), **C.I.B.C. (**1996-2001), **KPMG** (1997-99), **Société Générale (**1994-1997), **MUREX** (1996-97), **NAT WEST MARKETS** (1995-96), **PARIBAS (**1995), **C.D.C. (**1992-93).

Management / co-management of quantitative research and development.
Fixed-income and FX exotic option pricing and management system (Monte-Carlo + finite differences).
Credit derivative pricing and economic capital assessment for high yield portfolios (Monte-Carlo)
Energy option pricing and management system. Hedge optimiser and arbitrage detection.
Enterprise-wide risk management (market + credit). Methodology and implementation. VaR back-testing.
Trading. Arbitrage Strategies on Interest Rate Markets (futures, swaps, cash and FRA).
Trading strategies. Stock picking and statistical arbitrage on stock markets.
Model implied / statistical calibration. Fast algorithms for real-time position monitoring.
Numerous simple and complex models. Implementation and improvement (speed, stability…).

1988 – 92 **MATRA** (Paris, high tech, aero-space): Consultant (General Management and Space Branch)

ACADEMIC POSITION: RESEARCH AND TEACHING

2015-2018: **SUNY Stony Brook:** Frey Family endowed chair professor of quantitative finance
- Responsible for the Graduate Program in Quantitative Finance at the Applied Math and Statistics Dept.

1983-current: **CNRS** (French National Center for Scientific Research)
- **Laboratory of Excellence on Financial Regulation**: academic director (2013-

16), intl. rep., member of the executive committee (2016-current)

- **University Paris 1-Sorbonne**, Dept. of Economics (since 2011)
- **New York Univ. Poly. Inst.** International Ass. Prof. (2011-14)
- In sabbatical position from CNRS for Riskdata (2001-10)
- **Ecole Normale Supérieure of Cachan** (1997-2001)
- **Courant Institute,** New York University, visiting professor (1995-97)
- **University Paris I – Sorbonne,** invited professor (1995)
- **Ecole Normale Supérieure** Math dept. (1988-94)
- **I.M.P.A.**, Rio de Janeiro, Brazil, visiting professor (1986)
- **Ecole Polytechnique** Math dept. (1983-87)

Research Topics:

* Financial Mathematics (market statistics, option pricing, interest rate and credit models)), Optimisation, Control Theory, Numerical Methods, Statistics, Econometrics, Risk Management, Market stability and crises, Sovereign debt, Financial Regulation
* Dynamical and Hamiltonian Systems, Symplectic Geometry, Chaos theory, Probabilities and stochastic processes, PDEs

Teaching

2015-17	Lectures on **Portfolio Construction, Bayesian Statistics, Interest Rate Models, Numerical Methods** (PDEs, Monte-Carlo) at *Stony Brook University*
2011-14	Lecture on **Credit Risk** and Counterparty Risk at *NYU Polytechnic Institute*
2012-15	Lecture on **Algorithmic Trading** at *University of Paris 1* (Sorbonne)
2009-11	Lecture on **Risk Management** and **Portfolio Construction** at EDHEC business school
2006-09	Lectures on Risk Management at TsingHua, FuDan and ShanDong univ. (China)
2004-08	Various workshops on Hedge Fund Risk Management and Replication
2007	Presentation of Financial Mathematics at Keio Univ. Center of Excellence
2000-02	Various lectures on Risk Management and Credit Modeling
1995-97	Lecture at the *Courant Institute (NYU)* on **Interest Rate Models** (Ph.D level).
1994	Lectures (Ph.D. level) at *Univ. of Paris 1* (Sorbonne) on Interest Rate models
1994-pres.	Advise Ph.D students in mathematical finance and statistics.
1983-90	Lectures at Ecole Normale Supérieure (Paris), I.M.P.A. (Rio de Janeiro) on **Hamiltonian Systems**
1984-86	Preparation of E.N.S. students to the **Aggregation** national examination
1990-pres	Various invited lectures at Moscow State University, Toronto and Montreal, New York, Cornell, Berkeley, Warwick, Rome, Tokyo, China (Tsing Hua Fu Dan, San Dong)
1979-89	Preparation of undergraduate students (preparatory classes) to oral examinations (Lycée Louis-le-Grand, St Louis)

Organisation of conferences, seminars and workshops:

- Initiated and run the weekly Quant Finance PhD Seminar at Stony Brook University
- Session organiser in Paris-Europlace conference, New York 2017
- LabEx ReFi-Stony Brook University *International Conference on Financial Regulation and Systemic Risk*, New York/Stony Brook 2016
- LabEx ReFi *International Conference on Financial Regulation and Systemic Risk*, ESCP Europe, Paris, 2013
- Institut Louis Bachelier Annual Conference, member of the scientific committee

(speakers selection), Paris 2008-current

- Initiated and ran (with M. Avellaneda) a weekly *Seminar on Financial Mathematics* at the *Courant Institute (NYU),* Worldwide speakers (speakers and attendance: mathematicians, economists, traders, quants… 1995-2004).
- Initiated and ran the *Bachelier Seminar on Financial Mathematics* at the *Institut Henri Poincaré* (Paris, 1994-95)
- Member of the Organising Committee of the Bachelier Finance Society Conference in Paris, 2000.
- Conference on *Mathematical Problems in Finance*, Institute for Advanced Study, Princeton (April 1996).
- Colloquium on *Risks and Challenges of Derivative Markets*, Ecole Normale Supérieure and Caisse Autonome de Refinancement, Paris (March 1995)

Other experience:

- Organisation of the **International Mathematical Olympiads** (Paris, 1982).
- Responsible of **French Mathematical Society** relations with the industry (1988-89)
- Member of the board of **Friends of IHES**, an American foundation aimed at raising funds for the Institut des Hautes Etudes Scientifiques
- Member of the **Risk Committee** of Finance Innovation (2003-2015)
- **Riskergy** project aimed and rating sovereign debt risk, taking into account the energy supply/needs and its market price
- Think tank **Club Praxis** advising the French government on economic policy

SOFTWARE CAPABILITIES: Familiar with WINDOWS and MAC environment, EXCEL and Visual Basic, R. Some knowledge of Python, Matlab, C#, C++, Pascal.

LANGUAGES: French (native), English (lived and taught in the US for 20+ years), Russian, Portuguese.

EDUCATION & ACADEMICS

1978-83 Ecole Normale Supérieure of Paris (1st at entrance examination)
1980 Aggregation of Mathematics (rank 1st)
1982 Ph.D. in Pure Mathematics (univ. Paris 7-Diderot), specialty: Hamiltonian dynamics
1983 Admission to the C.N.R.S. (French National Centre for Scientific Research)
2013 Habilitation to Conduct Researches in Pure and Applied Mathematics (univ. Paris 1-Sorbonne)

Awards: International Mathematical Olympiads
1976 Bronze Medal
1977 Gold Medal