# RAFAEL SANHUEZA CONDELL

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## EDUCATION

**COLUMBIA UNIVERSITY,** Graduate School of Arts and Sciences — **New York, NY**

*Master of Arts in Mathematics of Finance* — Sept 2015 – May 2016

- Relevant coursework: Computational Methods in Derivatives Pricing (Python), Risk Management and Regulation (MATLAB), Statistical Inference & Time Series Modeling (R), Non-Linear Option Pricing (Python), Programming for Computational Finance (C++), Numerical Methods in Finance (VBA), Stochastic Methods in Finance

**PONTIFICIA UNIVERSIDAD CATOLICA DE CHILE** — **Santiago, Chile**

*Executive Program in Project Evaluation* — Aug 2012 – Jul 2013

- Relevant coursework: Financial Statement Analysis, Capital Budgeting, Business Strategy

*Bachelor of Civil Engineering with a Specialization in Structural Engineering* — Mar 2003 – Dec 2008

- Relevant coursework: Differential Calculus, Mathematical Methods Applied to Engineering, Economic Analysis, Finance
- Relevant Teaching Assistantship: Probabilities

## PROJECTS IN FINANCE

- **Evaluating Call Options using different transform techniques**: Implemented Fast Fourier Transform, Fractional Fourier Transform and Fourier Cosine methods to evaluate call options and performed sensitivity analysis (Python)
- **Pricing an up-and-out call (UOC)**: Implemented explicit-implicit finite difference scheme to resolve partial-integro differential equation of an up-and-out call option (Python)
- **Pairs Trading:** Evaluated performance of Pairs Trading Strategy on complete universe of S&P500 stocks. Classified stocks by industry, performed co-integration tests, and implemented trading algorithms (R, MATLAB)
- **Risk Management Software:** Designed software in MATLAB that calculates Value at Risk and Expected Shortfall of Portfolio of Stocks and Options, using method specified by user: Parametric, Historical or Monte Carlo
- **Capital Budgeting**: Optimized maintenance policy of mining truck fleet for Vecchiola S.A.; determined optimum renovation time based on asset decreased performance and market data; produced future cash flows
- **Project Finance**: Evaluated the profitability of a $13MM investment proposal for the relocation of a Teck mine's main water reservoir; resulting conclusion was found to be aligned with the real progress of the NPV $37MM project

## EXPERIENCE

**MARITIME CAPITAL LLC** — **New York, USA**

*Fixed Income Hedge Fund Quantitative Developer Intern* — Jan 2016 – Present

- Research, test and implement trading strategies to apply to fund's fixed-income portfolio (R, Excel)
- Analyze and manage large data sets and report findings to portfolio manager

**AMEC FOSTER WHEELER** — **Santiago, Chile**

*Seismic Reviewer, Kelar Gas Combined Power Project (Chile)* — Feb 2015 – Jul 2015

- Analyzed calculations performed by Samsung Engineering, Modelled buildings' behavior using MATLAB and Excel

*Structural Engineer, Kearl Oil Sands Project (Canada)* — Nov 2011 – Jan 2015

- Computed calculations to design buildings meeting strength criteria imposed by international standards

**SIRVE SA** — **Santiago, Chile**

*Structural Engineer, Seismic Protection* — Aug 2008 – May 2011

- Developed a structural analysis software in MATLAB in a team of 7
- Worked on a research and development project to create new seismic protection devices

## SKILLS

- MATLAB (Advanced), Excel (Advanced), Python (Advanced), R (Interm), C++ (Interm), VBA (Interm), SQL (Basic)
- Native Spanish speaker