Introducing LIST

Riccardo Bernini

Università degli Studi di Pavia

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LIST in a Nutshell

LIST is a **privately owned company** founded in Pisa in **1985**

LIST is **100%** focused on **Banking and Finance** and delivers solutions for:

**Capital Markets** and **Risk Management**

LIST **designs, develops & distributes** its own **technology**

A **product oriented** company

**Innovative**  **Industrial**  **International**
LIST: Technology for the Financial Industry

- Electronic Platforms
- Financial Calculators
- Spreadsheets
- Screen Trading
- Phone
- Networking, Internet, Cloud
- Algo Trading, A.I.

LIST’s solutions
- Electronic trading
- Treasury management
- Compliance
- Risk Management

Electronic Platforms

List's solutions

Trading Pit

List's solutions

Screen Trading
LIST global footprint

- **List UK** · London
  - U.K. and Northern Europe

- **List SpA** · Pisa
  - (headquarters), Milan, Turin, Trieste, Siena, Voghera; Italy and EMEA

- **List Inc.** · Toronto
  - Canada & North America

- **List Iberica** · Madrid
  - Spain, Portugal and South America

- **List Polska** · Warsaw
  - Poland and Eastern Europe

- **List India** · Mumbai
  - India and Middle East

- **List Malaysia** · Kuala Lumpur
  - Malaysia, China and Far East

● R&D departments

Distributing partners in Israel, China and Taiwan
LIST in Figures

- **120+ customers in 18 countries and 3 continents**
- **394 employees in 13 premises worldwide**

**A Growing Company**
LIST has been steadily growing both in terms of revenues and size.

**Staff Background**
- 28% Technical
- 72% Other

**Stable Revenue Structure**
The majority of LIST’s revenues is based on **recurring fees**.

**CAGR 2005-2017: 15.8%**

**Revenue Mix**
- **21%** Recurring
- **79%** Tailored Solutions
Financial Engineering Team
Financial Engineering

Who we are
- Physic: 50%
- Financial Economist: 20%
- Mathematics: 20%
- Engineers: 10%

Who we need
- Quantitative mindset & Mathematical background
- Interest in financial mathematics
- C++ programming skill
- Matlab, Python, MSExcel, R

What we do
- C++ Financial Libraries (pricing, analytics, risk)
- AI - Deep Learning Research for finance
**C++ Financial Libraries**

Overview of technical and mathematical functionalities implemented in the List libraries

**Monte-Carlo**
- multi-dimensional simulations
- Pseudo-Random Numbers (GFSR and RANLUX) and Quasi-Random Numbers (Sobol);
- Dimensionality Reduction (spectral decomposition); and Variance Reduction (antithetic sampling);
- Optimal Time Stopping (Andersen method and Longstaff-Schwartz).

**Optimization & Root finding**
- are used for:
  - Calibrating parameters of stochastic differential equations;
  - Best fitting of financial data;
  - Solving high-order equations like yield to maturity calculation;
  - Implied Volatilities calculation.
- Least Squares, Brent, Newton Raphson, Levenberg Marquardt, Bisection, Secant.

**Numerical Trees**
- alternative to Monte-Carlo simulations in order to discretizes the filtration on which underlying is defined.
- Deterministic Discretization (binomial and trinomial trees);
- Random Discretization (path integral between beginning and final states of underlying).
Artificial Intelligence for financial data

Deep Learning
- Forecasting of financial series
- Optimal execution of orders
- Anomaly detection

AI Tools
- Neural networks
- TensorFlow by Google
- Python

https://www.tensorflow.org
Grazie per l’attenzione

https://www.linkedin.com/company/list-spa

http://www.list-group.com

jobs@list-group.com