Introduction to the MTGA

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Academic History

- **1980** Born in Sao Luiz, Brasil
- **2005** Moved to Japan to study at the University of Tokyo
- **2007** Concluded the Master Degree in Computer Sciences at the University of Tokyo, in Iba Laboratory
- **2010** Concluded the PhD Degree in Computer Sciences at the University of Tokyo, in Iba Laboratory
- **2011** Researcher at the Federal University of Rio de Janeiro, Brazil
- **2012** Assistant Professor at University of Tsukuba

Research Interests

2007-2010: Financial Portfolio Optimization

Studied portfolio Weight optimization in my PhD in University of Tokyo

2011: Medical Data

Clustering of Medical data at Federal University of Rio de Janeiro

2012-2014: Seismic Modeling

Modeling of Seismic Events using Evolutionary Algorithms at Tsukuba University

Outline

Today, we will talk about methods for parameter selection in financial engineering problems.

What we will discuss today

1. What is optimization;
2. How can optimization be used for financial engineering;
3. Evolutionary Algorithms – a type of optimization;
4. MTGA – Evolutionary Algorithms for Portfolio Weight Selection;

Disclaimer

This presentation describes an stochastic optimization algorithm for parameter tuning. Stochastic methods are by nature **random**.

We do not guarantee any results from using the algorithm presented today.

Results depend on the implementation and the restrictions that apply to each problem. Please consult with your engineers before using this software.

What is Optimization

Optimization in Financial Portfolios

Types of Optimization algorithms

When do we want to use each optimization type?

What are Evolutionary Algorithms?

Evolutionary Algorithms and Random Search

Outline

Where to acquire the MTGA Code

What can you do with this code?

Caveats – points to pay attention

Time For questions