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A description of the Condor Genetic Programming project
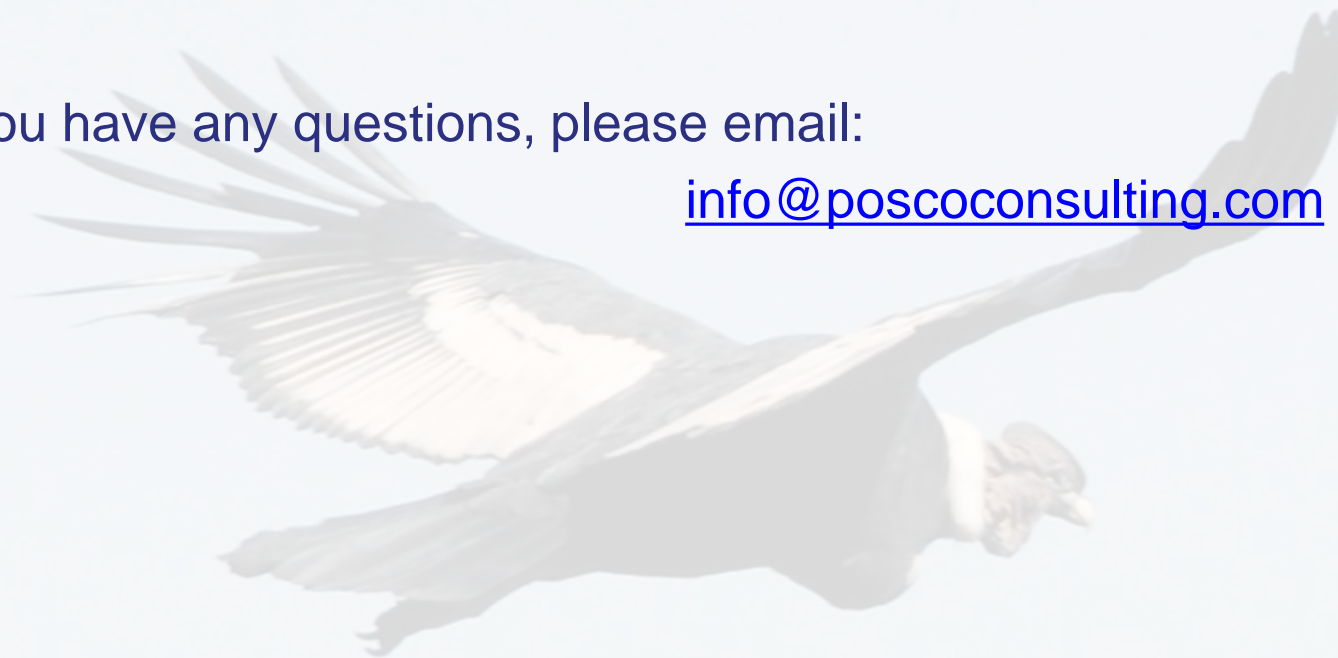.

WHAT IS CONDOR GP?

What these 5 slides look to achieve

1. To provide background information about CondorGP
2. To explain about Genetic Programming, and provide some pointers
3. To highlight important things about the CondorGP project
4. To introduce the CondorGP Project Strategy

If you have any questions, please email:

info@poscoconsulting.com

Sergio Goitia

About the CondorGP project

What is 'CondorGP'?

CondorGP is a Genetic Programming project.

'GP' stands for Genetic Programming. The next slide talks more about GP.

'Condor' is a metaphor: a large bird with excellent vision, soaring up high.

Who had the idea and when?

Hugh Harford originally had the idea for CondorGP in about 2005.

Since 2005, three ineffective attempts were made, in Matlab.

Then in 2015, Hugh started to take the project more seriously, using Java and ECJ
ECJ = Evolutionary Computation in Java.

What is Posco Consulting and how is it relevant?

Hugh started Posco Consulting Ltd, in 2015: www.poscoconsulting.com

Posco has a number of objectives, each different and each ambitious.

The timeframe for realising objectives is measured in years.

Long-term thinking enables high ambition, but requires care in the approach.

How does the CondorGP project fit as part of Posco?

Genetic Programming capability is one of the key company objectives. CondorGP is the first step towards this GP capability.

The CondorGP will be run through the UK company Posco Consulting Ltd.

About Genetic Programming

Genetic Programming is abbreviated to GP, but what is it?

Programming, using genetics. Alternatively: producing programmes with evolution.

For further research, start with: https://en.wikipedia.org/wiki/Genetic_programming and http://www.genetic-programming.com/johnkoza.html

Genetic Programming is a form of Artificial Intelligence (AI).

The theory of evolution, developed by Darwin and Wallace

The famous paper was published by Darwin in 1858, and was revolutionary, if controversial. Wallace contributed to the theory, but was later written out of history.

How is the theory of evolution relevant?

The AI discipline of GP takes an evolutionary approach. Evolution is applied, in a programmatic environment, to produce evolved individual programmes.

The principle: Evolve the individual, check the fitness of the individual, the best individuals go forward to the next generation.

The 'Fitness Function' gives a score for each individual

The Fitness Function measures the fitness result for every individual. The fitness thus dictates if the individual will be selected for the next generation. Careful design is required for the fitness function, so the intended programme is the evolved outcome.

The objective of GP is to automatically output programmes to solve a challenge

Many other evolutionary approaches exist - all similar in principle.

GP is different in that it seeks to produce a complete working programme.

A few important things about CondorGP

What is important to understand about CondorGP?

The project will play a significant part in the development of a capability in GP, and will demonstrate the effectiveness of the Posco capability in GP.

The aims of this project are ambitious, success will be worth the effort and time.

The long term approach taken has its has benefits. It means that if success is not quick and easy, lessons are learnt and further attempts are then made.

Once the GP capability has been demonstrated, the capability will be used for many further purposes, some of these are philanthropic.

What about the more immediate objectives?

The immediate objective is to trade on the financial markets, in a way that is both autonomous (does not involve day-to-day human decisions) and that manages risk.

The metaphor of a Condor is for a successful, independent trading entity.

The Project Strategy for CondorGP is:

To autonomously operate a profitable and sustainable trading ecosystem

Where is there more information about the project?

The following slide describes a little more about the Project Strategy.

To find out more, put together a few questions and email them in.

CondorGP Project Strategy:
To autonomously operate a profitable and perpetual trading ecosystem

Why a financial trading algorithm?

The financial markets are complex, and beyond full comprehension by humans. This makes the trading problem a good candidate for GP.

What will CondorGP trade in?

Any market indicator that is 'appropriate', i.e. accessible, liquid enough, cheap and potentially profitable.

Why would GP work well with this challenge?

GP is known for producing unusual answers to questions, so it can be expected to find useful differentiations.

As the output programmes are developed by evolution approaches (GP), and with minimal human input, the market complexity can be dealt with more objectively.

Perpetual? Is that realistic?

The objective is to develop a trading algorithm that will adapt itself, via evolution, and be able to continue to trade, essentially forever. Objectivity is therefore fundamental for unemotional (and therefore successful) trading in the long-term.

The realism is a good question. The objectives are specifically beyond realistic, to ensure the project aims for something beyond what is currently plausible.

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Thank you

PLEASE ASK QUESTIONS

Email address and website below

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