Christopher Morgan

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Employment

Gazprom Marketing & Trading, London

- Desk Quantitative Developer / Analyst, Ocotober 2014 - present

  - Research, evaluation and running of systematic trading strategies. Bayesian analysis of strategy performance (PyMC3 modelling). Appropriate position sizing given risk requirements and volatility.
  - European power market bid-offer curve forecast using linear and non-linear (neural network) methods (Python scientific stack)
  - Solving of power market grid constraints using linear optimisation techniques (Python cvxopt)
  - Web based dashboard for forecasts and market fundamentals (MongoDB, Python Tornado, d3.js)
  - Maintainance of Front Office .NET user libraires.
  - Adhoc scrapes and databases of cleaned market information (MongoDB, SQL abstracted with SQLAlchemy)
  - Teaching scientific Python to traders and analysts. Promoting Python best practices and testing.

Solo Capital Partners, London

- Quantitative Developer, April 2014 - October 2014

  - Development of front office equity trade flow platform (Java 8, AWS CloudFormation stack). Reporting to LSE via cloud hosted FIX connection.
  - Deployment and monitoring of architecture.
  - Design of Bloomberg backed data service.
  - Audit of existing Risk analysis tools.

Millennium Global Asset Management, St. James's Street, London

- Quantitative Developer / Analyst, September 2013 - April 2014

  - Maintenance and development of forex G10 systematic trading model and portfolio optimisation (Python (Linux and Windows client), Pandas and MATLAB).
  - Design of replacement infrastructure for model v2 (Python and Pandas).
  - Contribution to quantitative team research (Python and MATLAB).

Red Deer Ltd. (Marble Bar Asset Management), St. James's Square, London

- Senior Software Engineer, April 2013 - August 2013

  - Development and architectural design of Python based equity trading research / intelligence web-application (AWS stack).
    * Defining features through through consultation with fund managers (long/short and long only).
    * Market data (Thomson Reuters QA Direct) manipulation and processing.
    * Development of "real-time" factor calculation module (NumPy/Pandas).
    * Evangelised best practices for Python software development, Jenkins CI, virtualenv, nosetests, pep8 aherence and self documenting code through Sphinx.

Bleep Ltd., London

- Lead Software Engineer, September 2012 - March 2013

    - Responsible for internal and external development of e-commerce platform.
        * Development of e-commerce features, e.g. Persistent Cart, Recommendation Engine.
        * Implemented development best practices e.g. code review (Gerrit), continuous integration (Jenkins).
        * Specification and code-review (Gerrit) of external contractors deliverables.
    - Responsible for operation of e-commerce platform and associated technologies.
        * Streamlined deployment process through use of tools such as Fabric and Supervisor.
        * Operational tasks eliminated or improved through code.
    - Actioned infrastructure review which led to significant cost-savings.
    - Implemented business dashboard displaying metrics related to business and technology performance.

Zugo Ltd., London

- Lead Software Engineer, July 2010 - August 2012

    - Delivered business intelligence solution.
        * Collection of tracking data over HTTP. MongoDB used as transient storage, Tornado as async-webserver.
        * Persistent storage of data in Map Reduce (MR) cluster (Disco Project - Eralng and Python).
        * Sampling and statistical analysis (machine learning) of large distributed data sets.
        * SQL storage of MR job output.
    - Designed and implemented social search product
    - Managed small development team with Agile philosophy.
    - Efficient programming through use of modern tools e.g. Git revision control, sand-boxed development environments (Python virtualenv) and clean deployments (Fabric), continuous integration (Jenkins & Nosetest).
    - Helped drive company-wide strategy for testing and automated documentation.

Revector Ltd., London.

- Software Engineer / Analyst, June 2009 - July 2010

    - Development of cloud based service delivery and business analysis system:
        * Python based algorithmic fraud detection system. Rapid tailoring of algorithms to client specific requests.
        * Intelligent control and scheduling of assets. Distributed Python objects accessed and managed through Pyro protocol.
        * Automatic reporting and visualisation of both client facing and operational business data delivered via Django web applications.
        * Implementation of data feed delivery / JSON API system for client and internal use.
    - Gained increased proficiency in Python, NumPy, MySQL and data visualisation techniques. Added to expertise in Linux system administration.

Queen Mary, University of London

- Post Doctoral Research Assistant, Department of Physics, November 2008 - May 2009

    - Electronic Properties of Carbon Nanotube Networks. Analysis of quantum conductance of nanotube networks in terms of network percolation effects and the Landauer formula.

Experience

Econophysica Ltd., London

- Internship: Quantitative Analyst, April 2008 - June 2008

  - Development of multivariate data analysis solution based on principal component analysis (PCA) for determining correlation between input data. The solution was applied to yield curve analysis, but would suit a variety of financial applications. The solution was coded in C++ for integration with existing Econophysica modules. Econophysica provides high frequency algorithmic trading platforms in addition to derivatives pricing and risk evaluation services.

Personal Portfolio

ProfileOwl.com

ProfileOwl is an on-line service which facilitates the monitoring of public linkedIn profiles. The target market is the recruitment sector. The application was developed in my spare time with the following technologies: Python, SQLAlchemy, Tornado and Handlebars. Note: Domain relinquished, code available on request.

Weather and Moon - Android Application

Weather and Moon is a simple Android application which displays the weather forecast for a geographical region leveraging the Google Weather API and phone GPS. This was created in order to learn part of the Android SDK. Note: Google removed access to the "secret" weather API that this application consumed, it is therefore no longer on the Google Play store. Source code available on request.

Education

- Ph.D. Physics (Thesis Title: "Gas sensing with carbon nanotube networks"), November 2008
  National Physical Laboratory (CASE award) & Queen Mary, University of London, UK.

  - Analysis and interpretation of experimental data in terms of statistical physical process, e.g. variable range hopping charge transport and super and sub-diffusive time evolution of analyte spatial concentration.
  - Development of C++ and Visual Basic code to automate experimental data acquisition (magneto-resistance of carbon nanotube networks).
  - Data manipulation, processing and visualisation through custom Python modules.
  - Communication of scientific research to both non-technical (e.g. presentation at the House of Commons) and technical (e.g. presentation at the Institute of Physics) persons through both verbal and visual presentations.

- MSc Photonics, September 2004
  The University of St Andrews / Heriot Watt University, Fife, Scotland, UK.

  - Modelling of laser dynamics with MathCAD software.
  - Primary researcher in new business area during industrial project at Laser Support Services Ltd., Scotland.

- B.Sc. (Hons), Physics, 2nd Class, June 2003
  The University of Edinburgh, Scotland, UK

  - Typical Physics and Mathematics modules, including Statistical Physics and Non-linear Partial Differential Equations courses.
  - Scientific programming in C course.

- A-Levels: Physics, Maths, Chemistry, General Studies, June 1998
  Cardinal Newman College, Preston, Lancashire, UK

Skills

- Experienced in team lead role (Zugo experience), comfortable as team member (Revector experience) and as sole driver of project (PhD experience).

- Data analysis and pattern discovery, enhanced through programming skills.

- Excellent communication of complex topics in a commercial and research environment.

- Excellent Linux system administration skills, including cloud based deployments.

- Technical proficiency:

Level of proficiency	Skill
High	Python, NumPy, .NET, Java, SQL, Linux, Matlab, VBA
Medium	C, C++ , Javascript, Android SDK

- Strong technical writing and grammar skills.

Extra Curricular

- Building volatility targeted futures trend following system (Python). Aim is for maximum possible diversification given account size. Currently backtested at sharpe ratio ~ 1

- Enjoy applying novel techniques to financial data and publishing research, `http://wachunga.com/2014/02/06/beige_book_sentiment.html`

Publications

- Technical reviewer: Mastering Python Data Analysis, `https://www.packtpub.com/big-data-and-business-intell mastering-python-data-analysis`, June 2016.

- C. Morgan *et al.*,Variable range hopping in oxygen-exposed SWNT networks, *physica status solidi (a)*, DOI 10.1002/pssa.200778113.

- D.J. Mowbray, C. Morgan and and K. S. Thygesen, Inuence of O2 and N2 on the conductivity of carbon nanotube networks. *Physical Review B*, 79:195431, 2009.

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