

# Neil Crowley

SOFTWARE DEVELOPER

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## Skills

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**Programming** Python, SQL, JavaScript, C/C++, C#, Java, Perl, Visual Basic

**Misc** Tableau, Docker, React, UNIX, Linux, MPI, Excel/VBA

## Experience

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### Gazprom Marketing & Trading Ltd

London, United Kingdom

SENIOR PYTHON DEVELOPER (CONTRACT)

Oct. 2019 - Present

- Currently working as a senior Python developer, expanding an in-house intraday risk management system for the commodity derivatives trading desk.
- Working with traders and quantitative analysts to onboard new derivatives products in advance of trading, and building new trading tools and analytics.
- Rewriting legacy code using TDD in order improve performance, reduce operational risks and speed of delivery.
- Onboarding Power and Gas trading desks onto the platform and tailoring it to their individual needs.
- Previously performed feature development and Python 2 to 3 migrations of a number of in-house legacy Python applications. These applications are used for trade reconciliation and gas supply and demand forecasting. Worked with open-source libraries such as SQLAlchemy, Pandas, Numpy, Flask and Enaml.
- Provided hands-on Python development support to quantitative analysts, traders and other development teams.
- Developed read-through caching using Redis for an in-house analytics platform.
- Created unified Python APIs for heterogeneous data sources for use in trader and analyst Python notebooks and scripts.

### Bank of America

London, United Kingdom

SENIOR DEVELOPER (CONTRACT)

Oct. 2018 - Oct. 2019

- Python development of the Remote Risk framework used for consolidated pricing and risk across all LOBs across the FICC business. Hosted on the in-house Quartz platform.
- Provided ongoing maintenance of the framework and assistance to the LOB developers building solutions using the framework.
- Coordinated with the team globally to migrate the framework from Python 2 to 3.
- Remediated technical debt and improved overall test coverage of the framework and it's constituent calculators and components.
- Worked with the credit LOB to optimize scenario execution performance for calculation of CRM and IRC scenarios.
- Built scenario execution functionality using MapReduce pattern for full revaluation VaR calculation.
- Added framework support for calculation dependencies and error categorisation.
- Enhanced PnL predict calculators to support additional types of swap instruments.

### Deloitte LLP

London, United Kingdom

PYTHON SOFTWARE DEVELOPER (CONTRACT)

Apr. 2018 - Sep. 2018

- Development of a Python risk engine to generate the information needed to produce key information documents as part of the PRIIPs regulation.
- Built to replace the existing MarkIT risk engine and an XSLT based pre- and post-processing pipeline. Integrated into the existing .NET technology infrastructure.
- Implemented Cornish-Fisher and Bootstrap VaR models for linear and non-linear fund products.
- Created React single page application market data analysis tools for the risk managers.
- Worked with SQLAlchemy, NumPy, SciPy and React libraries.

### JP Morgan Chase Bank

London, United Kingdom

FIXED INCOME FINANCING ATHENA DEVELOPER - ASSOCIATE

Jan. 2017 - Mar. 2018

- Front office Python development of the Repo desk's Risk and PnL systems on JP Morgan's Athena platform.
- Worked directly with the traders to identify and resolve issues, gather requirements and develop new enhancements and functionalities.
- Built new position reporting dashboards for the traders, deprecating Excel spreadsheet applications.
- Developed APIs and processes to drive a constraint optimiser for inventory management and collateral optimisation. Worked to cleanse and normalise the data to be input and extracted the constraints required.
- Developed an application with the traders used for triparty repo reporting and liability management.

## Cheyne Capital Management UK LLP

London, United Kingdom

SOFTWARE DEVELOPER

Jan. 2014 - Dec. 2016

- Development and support of back-end services and user facing dashboards, touching on all aspects of the firm. Back-end development in C# and SQL Server 2008, and front-end work in Tableau.
- Developed a transactional message broker in C# and SQL Server Service Broker derived from RabbitMQ.
- Developed a Python web service using Flask and SQLAlchemy, and hosted with Docker. It is used to process real estate loan events and feed them into the Tradar trading system. This web service was built to be used as a framework for future web services built within the firm. Front-end built in Tableau and Polymer.
- Developed a SQL service to satisfy the firm's FORM PF and AIFMD reporting requirements. Liaised with the firm's risk, compliance and middle office teams to aggregate data across the firm.
- Developed a feed between the Wall Street Office and Tradar third party systems in Python, SQL and Powershell.
- Developed numerous enhancements to the firm's existing risk reporting, limits, investor reporting, pricing and fund management systems.

## Mitsubishi UFJ Securities International PLC

London, United Kingdom

CONSULTANT SOFTWARE ENGINEER

May. 2012 - Jan. 2014

- Development and support of the bank's in-house developed market and credit risk systems.
- Enhanced the price cleansing engine, built new price feeds, built batch performance monitoring and multiprocessing tools.
- Participated in the BAU on call rota, providing first and second line support.
- Duties involved supporting the day to day running of the batch process, liaising with the business users, development, testing and implementation of new features and bug fixes to the risk systems.
- Developed against a Java and C++ code base, in a Solaris environment and Sybase SQL server. Developed batch support tools in Perl and tcsh.

## First Derivatives PLC

Newry, Northern Ireland

SOFTWARE ENGINEER

Feb. 2012 - Jan. 2014

- Development of a VBA application for pricing and valuing interest rate swaps including amortizing swaps. The development involved yield curve construction, development of bootstrapping, interpolation and forward rate algorithms and creation of a trade input screen.
- The application also included risk management features analyzing the impact of parallel and impulse yield curve shifts on the swap valuation and suggested hedging.
- Placed as a consultant software engineer at MUSI between May. 2012 - Jan. 2014.

## Ultracold Quantum Gases Group, University College Cork

Cork, Ireland

MSC RESEARCHER

Apr. 2011 - Oct. 2011

- Design and development of 3D time propagation simulations of ultra-cold quantum gases. These atom chips are used for trapping matter in nano scale environments for applications in quantum computing.
- Atom chip design and data analysis in MATLAB and Mathematica.
- Parallelisation of the computer simulations in C using MPI and OpenMP for computation at the Irish Centre for High-End Computing (ICHEC).

## Integrated Photonics Group, Tyndall National Institute

Cork, Ireland

UNDERGRADUATE RESEARCHER

June. 2009 - Sept. 2009

- Research internship to design computational simulations to describe the propagation of light through various waveguide structures.
- 1D, 2D and 3D simulation of wave propagation in different types of optical waveguides.
- Implementation of a 3-D finite difference beam propagation method.
- Prototyped in Mathematica and then developed in C++

## Feasa Enterprises Ltd

Limerick, Ireland

SOFTWARE ENGINEER

Summers of 2005, 2006, 2007, 2008, 2010

- Developed a functional test board for the Feasa LED Analyser product using a PIC development PCB. The firmware was developed in C.
- Developed a product demonstration tool for the sales engineers using Visual Basic/C#.
- Built a previous version of the Feasa web page using PHP and MySQL.
- Developed control software for a 2D motorized optical test bed using Visual Basic.

## Education

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### University College Cork

Cork, Ireland

MSC MATHEMATICAL MODELLING & SCIENTIFIC COMPUTING (HONS) - 1ST

Sept. 2010 - Oct 2011

### University College Cork

Cork, Ireland

BSC PHYSICS & MATHEMATICS (HONS) - 2:1

Sept. 2006 - May 2010

## Writing

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### Full GPU simulations of coherent transport by adiabatic passage on atomchips

Phys. Rev. A 88, 053618 (2013)

T. MORGAN, L. J. O'RIORDAN, N. CROWLEY, B. O'SULLIVAN, TH. BUSCH

Sep 2013