

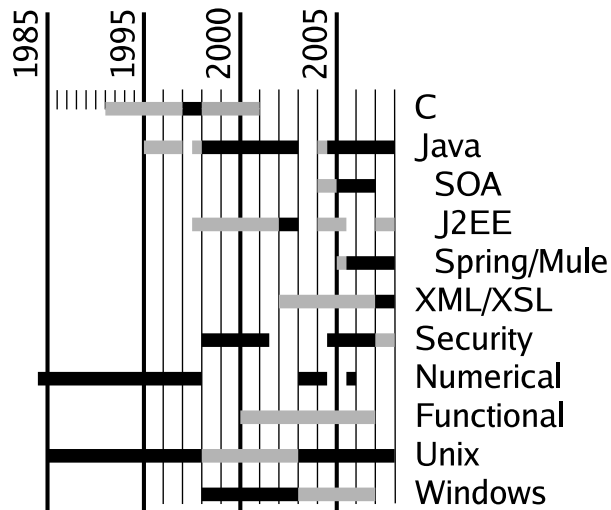
# Andrew Cooke

## Personal Details

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**Place of birth:** Harrogate, Yorkshire, UK.  
**Nationality:** British (permanent Chilean resident).  
**Languages:** English; Spanish.

I have broad engineering experience and a strong background in physics. Several of my previous jobs have combined these — I have written numerical software in Java and C — but I have also worked with “lightweight enterprise” Java, using agile techniques in SOA and ESB projects. I am very self-motivated, reliable, independent and productive with several year’s experience in telecommuting.

## Experience



**Languages:** Java, Python, C, SQL (some C++, Fortran, ML, Haskell, Lisp).  
**Platforms:** Unix (Linux, Solaris), Windows 2000, XP.  
**Process:** Agile development; Enterprise Architect (UML).  
**XML / HTML:** Spring (custom config), SAX, DOM, XSL, SVG, HTML.  
**J2EE, SOA:** Mule, Spring, JBoss, EJBs (not entity), JDBC, JMS.  
**Databases:** PostgreSQL, MySQL, SQL Server.

## Summary

- Professional Interests**
- Lightweight approaches to Enterprise SOA, using tools like Mule and Spring to simplify the implementation, shorten development times, and extend testing across multiple services.
  - Domain-specific and ‘little’ languages/parsing/code-as-data/flexible configuration. These ideas often provide a good abstraction layer for building adaptable, maintainable systems.
  - Efficient numerical and semi-numerical algorithms. For example, I have developed new, efficient approaches for filtering data in one and two dimensions.
- Skills**
- Experience with Agile, Requirements-Driven and Iconix (UML) processes.
  - In-depth knowledge of the Mule ESB messaging solution.
  - A decade of OO design experience.
  - Strong mathematical and statistical background.
  - Self-motivated problem solver.
  - Educated to PhD level (Astronomy, Cambridge University).

## Work Experience

**2008— Senior Software Engineer. ISTI, USA.**

ISTI develop custom software for the geophysical research community; they are based in the USA but have engineers in several countries.

In addition to web and database work, I have explored new territory developing a number of client-side GUI applications (using Python and wxWindows).

**2007—2008 Software Engineer. MuleSource, San Francisco.**

MuleSource is the company formed to support and develop Mule, an open source Enterprise Service Bus (ESB). I am part of a geographically-disperse team maintaining the core system, particularly TCP related transports.

I have also been responsible for the main user-visible change in the new version, an XML-based configuration system based on Spring’s extensible schema[1].

**2003—2007 Scientific Programmer. CTIO, La Serena, Chile.**

**NOAO Science Archive (NSA).**

Enterprise SOA system. Analysis, design, implementation, testing and documentation; particularly for messaging, database and security services.

- Developed a design approach that isolated business logic in POJOs[2]. This separates messaging from the main code and allows services to be ‘plugged together’ for simple, automated integration tests.

- Investigated ESB systems and chose Mule as a solution that provided good scalability, wide compatibility with existing transports, and support for rapid development with Java-based messages — a good, future-proof balance for a SOA that is still largely internal.

**Gemini/IRAF GNIRS Package.**

Spectral data processing system.

- Refactored and extended the existing (but incomplete) NIRI package to process data from GNIRS (both IR spectrographs at Gemini). A pragmatic approach was necessary (politically, between NOAO and Gemini; at a personal level, working with busy astronomers; and in the programming, which was largely in IRAF CL/SPP (Fortran))[3].

## Work Experience (cont.)

- 2002—2003 Head of development / Consultant. Webtron Finance, Santiago, Chile.**  
Designed and implemented a system to receive and process financial data.
- Learnt, over 7 months, how to develop J2EE-based web applications, in a new language and culture, with no previous application server experience.
  - Started as a single Java programmer writing to a dictated design; finished leading a small team (two programmers and web designer) to beat an impossible deadline with shifting requirements.
- 1998—2001 Software Engineer. Intertrader Ltd, Edinburgh / Leicester, UK.**
- Designed, implemented, documented and maintained a Java interface to the OpenSSL SSL library (written in C) via JNI. MS Windows platforms.
  - For the Intertrader CashBox System I designed and implemented most of the server-side application, combining standard Java components (to become 'J2EE') within a dynamically configurable framework (similar to the 'Spring' framework, although I was unaware of that at the time) to give the flexibility necessary when working for different clients with conflicting requirements.
  - Two years experience telecommuting.
- 1997—1998 Software Engineer. Concept Systems, Edinburgh, UK.**  
Responsible for algorithms to calculate the position of long (5km) cables towed behind boats prospecting for oil.
- Developed a novel, fast algorithm for median filtering (using a sorted tree for the data within the window).
  - Helped start an internal discussion group to encourage movement from C to C++.
- 1995—1997 Postdoc. Institute for Astronomy, Edinburgh, UK.**  
Numerical analysis (Fortran 77; maximum likelihood estimates; integration; optimisation) of the distribution of Lyman- $\alpha$  absorption lines to estimate the evolution of the ionizing background at high redshifts.
- 1994 Research Assistant. CTIO, La Serena, Chile.**  
Analysis of Hubble and ground-based long-slit and Fabry-Perot observations. Fortran (fitting models of gas flow to 3D spectral data) and IRAF.
- 1988—1993 PhD in Astronomy. Institute of Astronomy, Cambridge, UK.**  
Voigt profile fitting in Fortran. Observed (mainly echelle spectroscopy) at AAT, CTIO 4m, WHT. Wrote software in Fortran with IRAF / Imfort to do optimal data extraction (not supported in IRAF for echelle spectra at the time) with automatic cosmic ray rejection.
- 1985—1988 BA in Natural Sciences (Maths and Physics); Christ's College, Cambridge, UK.**  
First class honours (final result and all intermediate examinations); received various scholarships.
- Technology Apprentice. British Aerospace, Stevenage, GB.**  
Workshop training (metalwork, electronics). General work experience within the company.