

# Richard Morris

## Curriculum Vitae

Date of Birth: 5th July, 1965  
Nationality: British

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## Key Skills

- Teaching/Training skills – 18 years experience
- Computer Programming – 30 years experience in Java/C#/C and many other languages.
- Mathematics – specializing in differential geometry, shape analysis and 3D mathematical graphics. Ph.D. & 10 years research experience.
- Management skills – ran a small charity, with responsibility for all management and administrative duties. Program manager for BTEC and IT Degree Programs.

## Work Experience

Aug 2021 -  
March 2023

### ***HE Program Manager***

Cornwall College, Camborne

- Program manager for IT degree programs and BTEC IT program
- Taught Programming Units on the Foundation Degree and BSc Program

Aug 2021 -  
March 2023

### ***Program Manager - BTEC IT***

Cornwall College, St Austell/Camborne

- Taught and managed 2 BTEC Information Technology Programs
- Taught Programming Units on the Foundation Degree and BSc Program

Jan 2016–  
July 2021

### ***Seasonal Lecturer***

Cornwall College, St Austell/Camborne

- Teaching Visual Programming on the Foundation Degree Program
- Taught A level Maths and A level Further Maths

- Taught Microsoft MCP/MCA HTML5/JavaScript on a software apprenticeship program
- Reviewed course material for potential online degree program

Sept 06–  
present

### ***Software Developer / Partner***

singularsys.com

Developing the Java Expression Parser (JEP) a library for parsing and evaluating mathematical expressions. My work has involved creating a configurable parser to enable easy end-user customisation, creating a very fast evaluation system and adding multi-threading and serialization capabilities. The library began as an open-source project and is now being sold commercially. I am one of two partners.

Sept 06–  
June 2021

### ***Self-employed mathematics tutor/home education teacher***

Teaching science classes to groups of home educated students with ages from 7 to 16.

Offering private mathematics tuition to a number of students from 7 to 20. This work has included teaching mathematics a small group of home-educated children and degree level mathematics.

Feb 08–  
Feb 10

### ***Seasonal Lecturer***

Cornwall College, St Austell

Teaching IT and software development courses for a BTEC National Diploma for IT Practitioners. Duties included developing course material, delivering classes, student assessment, and acting as a personal tutor.

Oct 07–  
Jan 08

### ***Mentor***

Unlocking Cornish Potential/Ashley PR

Providing mentoring support for a new graduate in a small business, involving creation of a Drupal content management system.

July 01–  
July 08

### ***Full Time Volunteer/Manager/Trustee***

Plants For A Future: Lerryn, Cornwall.

Management roles in developing an education centre for the dissemination of information on useful plants. Roles have included: managing charity finances; preparation of newsletter, annual reports and accounts; running a training/volunteer program; employment of contractors; and the disposal of charity land, raising over £100K for the charity.

Sept 95–  
Dec 09

### ***Website Manager***

Plants For A Future, Lerryn, Cornwall.

Developing and maintaining a website for a registered charity, which was getting over a million page hits per month. Developed an of an online database of plant information initially using CGI and C programs and more recently a PHP/MySQL version which allows community contributions. Developed a CD-ROM version of the database using Access and Visual Basic. Introduced advertising and e-commerce systems which formed the backbone of the charity's income.

Oct 99–  
July 01

***Part Time Tutor***

ShIPLEY College, ShIPLEY, Bradford; Training Dept. Leeds City Council; Leeds College of Technology.

Taught courses: C++ (City&Guilds Levels 1–3); Web Page Design (C&G Level 2); Java (C&G Level 3); Key Skills I.T (edexcel); Introductory IT and Basic Skill at the "Big Issue"; Introductory IT at Adult Education classes.

Oct 98–  
July 00

***Research Fellow: Shape Changes in the Human Face***

Department of Statistics, University of Leeds

Investigating how the shape of the human face changes through childhood. Involved: extracting geometric features to describe the face via a combination of Perl, C and the statistical language R; working with VRML and other 3D formats; performing statistical analysis of the results; presenting the results of the project at a number of international workshops and conferences.

Nov 96–  
Sept 98

***Research Assistant: Characterizing object trajectories***

School of Computer Studies, University of Leeds

Developing techniques to characterize the paths of people walking through car parks, in particular their interactions with other objects. I have developed a novel algorithm based on using landmark data which has shown promising results. This has also involved work on real time tracking systems using active contour models.

May 96–  
Sept 96

***Research Assistant: Image Analysis of X-ray Images***

Department of Statistics, University of Leeds.

Developing algorithms for finding detonators in X-ray images of suitcases. Techniques such as morphological operators, Hough transforms and cross-correlations have been combined to produce a fairly quick algorithm which can work on cluttered images. I have also helped in investigations into the curvature of spines.

Nov 93–  
March 96

***Research Assistant: Computer Algebra Support***

Department of Applied Mathematics, University of Liverpool.

Developing computer based teaching material for first year mathematics undergraduates. Including the co-writing of one module using the Toolbook package and providing technical support for the computer algebra need of the "Mathwise" program which involves over thirty universities.

Mar 90–  
Oct 93

### ***Research Assistant: Geometric Software Development***

Department of Pure Mathematics, University of Liverpool

Developing software for visualizing a wide variety of mathematical curves and surface, research into 3D geometry and administrating a small network of Unix workstations.

## **Education and Qualifications**

Oct 06–  
Dec 06

### ***NCFE Level 3, Certificate in Preparation for Business***

Truro College, Truro, Cornwall. (Awarded 23/2/07)

Oct 04–  
June 05

### ***Post Graduate certificate in Education (Post Compulsory Education) PGCE(PCE)***

Cornwall College, St Austell / University of Exeter. (Awarded 31/10/05)

Taught classes in Mathematics/Statistics (Access to HE), Web page design, Intermediate and Advanced Excel.

Research project on analysing learning styles through classroom observation.

Oct 03–  
Dec 03

### ***Certificate in Further Education (City & Guilds 7407 Stage 1)***

Cornwall College, St Austell. (Awarded March 04)

Oct 87–  
Apr 90

### ***Ph.D., Pure Mathematics/Information Technology,***

University of Liverpool. (Awarded 17/12/90)

Investigation of various topics in curve and surface geometry using mathematical techniques in singularity theory and experimental investigation with computer graphics.

Oct 86–  
Sept 87

### ***M.Sc., Pure Mathematics.***

Manchester University. (Awarded 4/07/1988)

Oct 83–  
June 86

### ***B.Sc. grade II(i), Mathematics (Pure Mathematics).***

University of Kent at Canterbury. (Awarded 19/07/1986)

Third year dissertation: "Euler's theorem". I won a prize for examination results in the first year.

Oct 76–  
July 83

St Georges School, Harpenden,

**A levels:** Maths A, Physics A, Further Maths A, Mathematics special paper grade 1. **A/O level:** Computer Science B. **O levels:** Maths A, Physics A, Biology B, Chemistry B, Geography B, Economics B, English C.

## Computing Skills

Computer Languages:

Java, C, C#, C++, JavaScript, HTML5, SQL, XML, Fortran, Basic, Z80 assembly, Pascal, tk/tcl, Perl, PHP, Python

Other Computing:

MS-Access, Excel, LaTeX, Postscript, Maple, Unix administration.

## Other Activities

2021–  
Present

Research program on generating 3D meshes of mathematical surfaces for 3D. Working with an architect from Austin, Texas

2015–  
Present

Ki-Aikido Teacher, 2nd Dan. Taught a small class for eight years

2014–  
Present

Board member, Lerryn Village Website. In 2019 helped oversee a redesign of the website to increase accessibility and bring it up to modern web design standards.

2010–  
Present

Administrator on Wikipedia. Helped with a project to rework the mathematical formatting system, and fixing syntax errors across all language wikis.

2007–  
2021

Chair of Los-Samba, a samba band based in St Austell

## Publications

*A New Method for Drawing Algebraic Surfaces*, R. J. Morris, in *Design and Applications of Curves and Surfaces*, Ed R.B. Fisher, Clarendon Press, Oxford, (1994).

*Sub Parabolic Lines on Surfaces*, R. J. Morris, in *Mathematics of Surfaces VI*, Ed. Glen Mullineux, IMA new series 58, Clarendon Press, Oxford, (1996).

*Sequences and Series*, D Hodgekinson, R. J. Morris, Mathwise module, UK Mathematics Courseware Consortium, (1996).

*Rules of differentiation (PC Version)*, G. Wood, A. Thomas, R. J. Morris, Mathwise module, UK Mathematics Courseware Consortium, (1996).

*The Use of Computer Graphics for Solving Problems in Singularity Theory*, R. J. Morris, in *Visualisation and Mathematics*, Ed. Hans-Christian Hege and Konrad Polthier, Springer Verlag, pp 53–66 (1997)

- Knowledge Based Geometric Object Recognition*, R. J. Morris, K. V. Mardia, C. C. Taylor, J. D. Burrows Proc. European Conference on Security and Detection . IEE Conference Publications No. 437 (1997)
- Statistical Models of Object Interaction*, R. J. Morris, D. C. Hogg, proc. IEEE Workshop on Visual Surveillance, Bombay (1998).
- Exploratory Analysis of Facial Growth*, R. J. Morris, J.T. Kent, K.V. Mardia, R. G. Ackroyd, M. Fidrich, A. Linney, Proc CISST, Las Vegas (1999).
- Analysing Growth in Faces*, R. J. Morris, J.T. Kent, K.V. Mardia, R. G. Ackroyd, M. Fidrich, A. Linney, Proc. Leeds Annual Statistical Workshop, Leeds (1999).
- Analysing growth in faces.*, Morris, R J, Kent, J T, Mardia, K V, Fidrich, M, Aykroyd, R G, and Linney, A in Proceedings Conference on Imaging Science, Systems and Technology Las Vegas pp 404–410, (1999).
- Estimation of torsion* Mardia K.V., Morris R.J., Walder A.N., Koenderink J.J. Journal of Applied Statistics, 26(3), 373–381.
- A Growth Model for Shape*, R. J. Morris, J.T. Kent, K.V. Mardia, R. G. Ackroyd, Proc. Medical Image Understanding and Analysis, London (2000).
- Statistical Models of Object Interaction*, R. J. Morris, D. C. Hogg, International Journal of Computer Vision, (2000).
- A parallel growth model for shape.* Morris, R J, Kent, J T, Mardia, K V and Aykroyd, R G in Proceedings Medical Imaging Understanding and Analysis, 171–174. (2000)
- Procrustes growth models for shape.* Kent, J T, Mardia, K V, Morris, R J and Aykroyd, R G in Proceedings of the First Joint Statistical Meeting New Delhi, India. 236–238. (2000)
- Functional models of growth for landmark data.* Kent, J T, Mardia, K V, Morris, R J and Aykroyd, R G in Proceedings in Functional and Spatial Data Analysis, eds. Mardia, K V and Aykroyd, R G. Leeds University Press, 109–115. (2001)
- Zero sets of Simple Singularities of functions on  $R^3$* , R. J Morris, Electronic Geometry Models, No. 2001.06.001–2001.06.020. [http://www.eg-models.de/models/Surfaces/Algebraic\\_Surfaces/Singularities/](http://www.eg-models.de/models/Surfaces/Algebraic_Surfaces/Singularities/). (2001)
- World Wide Web as an Aid to Search and Explore New Plants of Global Importance.*, A.K. Chhabra, R.S. Banga M.S. Punia, K. Fern and R.J. Morris, in Symposium Proceedings, Perspectives in Medicinal & Aromatic Plants: Research & Development, Department of Plant Breeding, CCS Haryana Agricultural University, Hisar 125 004, India. pp 73–80, (2002)
- A client-server system for the visualization of algebraic surfaces on the Web* , R. J. Morris. In Algebra, Geometry, and Software Systems, Ed. Michael Joswig and Nobuki Takayama. Springer Verlag, pp 239–253. (2003)
- Left Brain, Right Brain, Whole Brain? An examination into the theory of brain laterilization, learning styles and the implications for education.* PGCE Thesis, Cornwall College, St Austell, (2005). <http://www.singsurf.org/brain/rightbrain.php>
- Transitions in Dynamic Wallpaper Patterns*, R.J. Morris. Symmetry: Culture and Science. Vol. 21, Nos. 1–3, p49–58, (2010)