Curriculum Vitae: Thomas Heseltine

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Date Of Birth: 8th May 1979
Nationality: British

Career Goal

To follow a rewarding career that utilises state of the art technology to solve complex and challenging problems. I would welcome a position of responsibility, with the freedom to innovate, explore new ideas and express my creativity, while still incorporating substantial hands-on development. I would favour a career that extends my expertise in computer vision and pattern recognition to a range of practical applications. Using my extensive research and development skills acquired during my PhD, I would hope for the opportunity to progressively break new ground, forcing back the boundaries of the possible via creative new products that may significantly influence our way of life.

Qualifications

2004 Doctorate **PhD** in Computer Science: Face Recognition, University of York (Completed by 1/10/2004).
Research Topic: Comparing and extending 2D face recognition techniques and development of 3D matching techniques, utilizing geometric 3D face data to improve accuracy and reliability.

2001 Degree **1st Class** BSc Honours in Computer Science, University of York.

1997 A-Level Pure and Mechanical Mathematics(**A**), Physics(**A**), Computer Science(**A**).

1996 GCSE Eleven GCSEs including Maths and English.

Work Experience

2001 – 2004: Face Recognition Consultant (Portsmouth, York, Washington D.C.)

Working closely with companies such as Bio4 Ltd., Cybula Ltd. and AC Technology Ltd. I have designed and implemented face recognition software for integration into existing security systems or to form part of a new product. This has often lead to paid consultancy work, when tasks were required that fell outside the scope of my PhD: providing biometrics training for software engineers; presentations to large US government agencies; demonstrations of our newly emerging 3D face recognition systems; and technical assistance in business development meetings.

2001 – 2004: Demonstrator, The University of York (York)

One of my responsibilities as a research student is to teach undergraduates in computer science, particularly discrete mathematics, programming and database design courses. This involves taking practical classes, monitoring attendance, helping undergraduates with course material and marking work.

2001: Biometrics Systems Engineer, Bio4 Ltd. (Portsmouth)

Prior to commencing my PhD, I worked for a Biometrics company, developing a face recognition system called FaceGate. As part of a small team, I extended some simple face recognition tools into a fully functional biometrics system used for secure site access. Bio4 went on to sponsor the first year of my PhD.

1999: Software Engineer, RCP Consultants Ltd. (Didcot)

As part of my university sandwich course I undertook a yearlong industrial placement at a computer consultants company. I spent six months in the Dealing Division working on Reuters' foreign currency exchange software (Dealing 3000) and programming automated testing software. I then moved to the New Developments Division, where I researched into emerging technologies, soon becoming focused on WAP and mobile computing. I created some of the first interactive WAP sites as proto-types and demonstrations for potential clients and defined a new HTML subset (s-HTML) for small hand-held devices, later adopted as a company standard.

1994 – 2001: Barman and Waiter (Bridgnorth)

I began working in a restaurant at the age of 15, experiencing many areas of the catering business. During my A-levels, I also took on a bar job at a local pub. This work continued to provide financial support through my studies at university, as well as providing me with excellent inter-personal skills, which are still proving to be an invaluable asset today.

Publications

"Evaluation of Image Pre-Processing Techniques for Eigenface Based Face Recognition"
T. Heseltine, N. Pears, J. Austin. The 2nd International Conf. on Image and Graphics, SPIE vol. 4875, pp. 677-685

"Face Recognition: A Comparison of Appearance-Based Approaches"
T. Heseltine, N. Pears, J. Austin. Digital Image Computing: Techniques and Applications, Vol. 1, pp. 59-68

"Combining Methods of Face Recognition Using Fisher's Linear Discriminant"
T. Heseltine, N. Pears, J. Austin. International Symposium on Defense and Security. Awaiting publication.

"Three-Dimensional Face Recognition: An Eigensurface Approach"
T. Heseltine, N. Pears, J. Austin. The 11th IEEE International Conference on Image Processing. Currently under review.

"Epipole Estimation under Pure Camera Translation"
Z. Chen, N. Pears, J. McDermid, T. Heseltine. Digital Image Computing: Techniques and Applications, Vol 2. pp. 849-858

Skills Profile

Project Management: I have been responsible for my own project management during the course of my PhD, gaining practical experience of formal methods learnt in project management courses, such as earned value control, critical path methods and risk management techniques. Liasing with companies, research institutes and business leaders in the biometrics field has become an integral part of my PhD, whether evaluating technology, identifying potential collaboration or seeking specialist knowledge. I have also played a leading role in coordinating research teams across numerous departments, universities and companies in sub-projects such as populating the world's largest 3D Face Database for research.

Biometrics Software Engineering: Design and implementation of biometric face recognition systems, including 2D and 3D techniques formulated from my own theories. I have designed such systems for Bio4 Ltd. and Cybula Ltd., which more recently have also been adopted by AC Technology Ltd., for evaluation in US airport security and military applications.

Research: I am highly proficient at collating and assimilating large amounts of information. Data analysis and mathematical modelling have also played an essential role in successfully formulating face recognition algorithms. Using my keen analytic and diagnostic skills, I am able to prototype systems quickly, perform rigorous evaluation procedures and extrapolate conclusions from the results produced.

Theory Development: Using my excellent grasp of logic and mathematics I have improved numerous methods of 2D face recognition and created novel 3D face recognition algorithms. I am able to express these concepts in terms of mathematical formulae and clearly defined logical principles.

Project Development: From requirement specification through to testing and quality assurance, I have extensive training in system life cycle development, having studied several formal design methodologies (OO Design, UML, Software Engineering with B, rapid prototyping), as well as courses in relational database, user interface and web design. I have applied these techniques throughout my industrial placement, academic projects and consultancy work.

Programming: In studying formal programming techniques, language theory and compiler construction, I have become adept at learning new programming languages. To date, my experience includes the following: Basic, Scheme, Ada, Haskel, Prolog, Eclipse (constraint logic programming), C, Python, Java, HTML, WML and ASP. In addition I have four years experience using Visual C++ in industrial projects.

Interpersonal Skills: I developed excellent communication skills from constant interaction with customers as a barman and waiter for seven years. Working as a demonstrator at the university focused this skill to communicating complex concepts clearly and effectively. I have given many presentations to large audiences, at both technical and conceptual levels, including international conferences, national exhibitions and internal peer reviews. In my position as a Jiu Jitsu instructor I have also learnt to motivate people, particularly when under pressure. For example, during a Jiu Jitsu grading, after five hours of exhausting physical exertion my students are often ready to give up, at which point it is my responsibility to encourage and motivate them to achieve their full potential.

Other Achievements

- 6th Form Annual Prize for Achievement in A-Level Computer Science (1997).
- Appointed as an expert referee for a world leading computer vision conference: TPAMI (2003).
- First Aid Qualification (Jitsu Foundation-First Aid Certified 2003).
- Highest level Jiu Jitsu Instructor Qualification (2002).
- Bronze, Silver and Gold medals won at the Jiu Jitsu Judo National Championships in 1999, 2000 and 2001.
- University of York Half Colours with Merit for sporting achievement (2001).
- Clean driving licence since May 1996.

Interests

Martial Arts

I have a keen interest in martial arts because of the mental and physical challenge presented in learning such an ancient art form. I gained the highest junior grade in Judo by the age of fourteen. Since then, I have passed four Aikido and three Kung Fu grades. I began Jiu Jitsu when I came to university, which has furthered my knowledge of Judo and Aikido (which are derived from Jiu Jitsu). I am currently a brown belt and teach a weekend Jiu Jitsu class, as well as running the university's popular self-defence course, aimed at new students beginning life away from home.

Travel

I enjoy travelling a great deal and have been to many European countries, including skiing in Austria and Greek Island hopping. I have also visited parts of the USA, South Africa and the Caribbean. Since then I have taken a holiday in Thailand, travelling through Bangkok and some of the more remote Thai islands. While presenting at conferences in China and Australia, I used the opportunity to see a great deal of these fascinating countries, including Beijing, The Great Wall and The Forbidden City, as well as climbing the Sydney harbour bridge and trekking through the Blue Mountains.

General

I like to get involved in the organisation of societies of which I am a member. During my time at secondary school I was a form captain, junior prefect and an upper sixth prefect. I also took part in a paired tutoring scheme, helping a younger pupil with essential basic academic skills on a weekly basis and hosted the Children In Need, Main Event Comedy Show, helping to raise £3000. At university I was the Jiu Jitsu club treasurer, ensuring that club finances conformed to Athletics Union budgets, amounting to an annual turnover of several thousand pounds. Since then I have taken the position of Jiu Jitsu club Social Secretary, arranging many social events for the clubs 100 plus members.

References available on request