Karla Parussel BSc(HONS) MSc PhD
Email found on website
Location: München

EDUCATION

PhD in Biologically inspired Artificial Intelligence. Stirling University 2002 - 2005

MSc in Evolutionary & Adaptive Systems. Sussex University 1997-1998

BSc(Hons) Computer Science (2:2) University of Kent at Canterbury 1994-1997

MAIN PROGRAMMING LANGUAGES

• C++	G++, Borland
• Java	JDK, J2EE
• C#	Microsoft Visual Studio Professional 2012

SKILLS

• Artificial Intelligence	See publications for details. Biologically inspired neural networks, artificial neural networks, self-organisation and dynamical systems, genetic algorithms**,** artificial-life.
• Code generation	Java to VRML C++ to VRML Java to Java to XML Java to JavaScript C# to RTF
• Information visualisation	Knowledge engineering, complex neural networks & social interaction**.** See website for **e**xamples.
• Distributed & Socket programming	Agent architecture (Java) Inter-Life (Java) Academic research (C++)
• Multi-threading	At ESO (Java) Inter-Life (Java) Academic research (Java & C++)
• Extreme programming	Used at Netdecisions for web development

TOOLS

- Spring, Qt4, VRML
- JSP, Servlets, Swing
- GDB, Valgrind
- MySql, Oracle
- STL, Boost, GMP
- VXML, Nuance SpeechObjects

CAREER PROFILE

11/2012 - Present **Feingold Technologies GmbH** **Developer**

Developed an application in C#, called VerityMind that would analyse arbitrary text in terms of its emotional salience and polarity. The application read in, manipulated and generated RTF files. The text required extensive parsing, taking into account punctuation, parts of speech using WordNet, commonly used phrases, negation words etc.

07/2011 – 11/2012 **European Southern Observatory** **Developer**

Responded to an advert posted by 'top itservices AG' to replace an existing contractor who was due to leave. After the telephone interview I had ten days to move to Germany to spend one day with the previous contractor so he could hand over his work. Maintained existing software written using Java, Swing, JQuery, Javascript, Python and Oracle. Also implemented utilities as required.

Reason for leaving: ESO's contract with 'top itservices AG' was for a limited time period and a finite number of hours. The contract was not renewed since the development stage of ALMA was drawing to a close.

12/2008 – 06/2011 **University of Stirling** **Research Assistant**

Initially employed on a fixed term two year contract to provide tools and technical support for the Inter-Life project. The contract was extended for half a year and then continued for a few months afterwards on a freelance basis paid by the University of Glasgow.

The aim of the project was to support skills development of young people to enhance their management of educational and social transitions in their lives. The project used the Second Life and OpenSim platforms to provide heavily scripted virtual environments. In-world objects were scripted using LSL to track data such as local chat, personal reflections, positional and rotational information and social clustering. A back-end server was implemented in Java to store this data using MySql. This information could then be replayed back in-world or using Java client programs at a later date. Tools were created to help establish a community. These allowed users to see who else was in-world and the likelihood of other people coming in later on. Communications were enabled between in-world avatars and out-of-world users using Skype and Twitter. Tools were also created to enable the secure creation and management of users for the Inter-Life system. I wrote the technical sections for two grant applications submitted by other members of the department. I was joint-author on two papers produced by the Inter-Life project and also wrote a journal paper in my spare time that was accepted and published.

Reason for leaving: Funding ran out.

01/2008 – 12/2008 **Self-funded** **Researcher**

I moved back in with my parents so that I could work full-time on expanding the

framework I use for my academic research. I used this period to develop my skills so that they were current and also useful for freelancing. The framework is written in C++ for the Linux platform. Beforehand it was used to evolve agent controllers for use in artificial worlds. It is now possible to evolve functions for use with data sets that are read in from heterogeneous sources. I have distributed the framework using parallel processing techniques, multi-threading and sockets. I also developed a 'free energy automata'. This was written in Java for multi-core platforms using a GUI and 2D graphics. The aim was to explore how the flow of free-energy into an open-ended system can allow for interesting forms of self-organisation.

01/2007 – 12/2007 **University of Hertfordshire** **Research Fellow**

I was informally offered a position as research fellow by the external examiner the day after the viva of my PhD to work on the Humaine project. The project finished at the end of 2007 and therefore funding was only guaranteed until then. Research was led by the results of my PhD. I researched temporal processing using self-organising spiking neural networks, neuromodulation and also how neural networks can be used to provide signals to each other. The experiments were coded in C++ for the Linux operating system. I was also the project supervisor for two MSc students.

Reason for leaving: Funding was for one year only.

11/2005 – 12/2006 **Smith's Aerospace** **Senior R&TD Engineer**

Employed in the R&TD department as part of a team to develop and debug existing fleet user management software. The role required me to work closely with the aeronautical engineers developing algorithms that they could use whilst drawing upon my software engineering knowledge and expertise. I designed and implemented envelope-estimation software for use in arbitrary dimensions, as well as curve- and distribution-fitting algorithms. During this time I also worked on the thesis of my PhD during the evenings.

Reason for leaving: External examiner offered me a position the day after my PhD viva.

10/2002 – 10/2005 **Stirling University** **PhD student**

The topic of the PhD was to emulate emotions and neuromodulation for use in intelligent and autonomous agents using a non-symbolic bottom-up approach. The functionality provided by emotions in natural agents was emulated by modelling the same underlying processes in artificial agents. A biologically plausible neural network using spike timing-dependent plasticity was implemented and comparisons were made between agents performing different tasks with and without the use of global neuromodulators.

Reason for leaving: Funding for PhD was for a fixed period.

04/2000 – 09/2002 **Netdecisions Ltd** **Senior Developer**

Employed at the R&D department. Initially researched and developed new technologies in the areas of information visualisation, personal area networking, agent architectures and the classification of user navigation of web sites with a view to personalising content. The department then focused on the development and implementation of the voice equivalent of web sites. This involved identifying and solving the issues that arose from implementing such a new technology. Having initially learnt the Nuance Speech Objects library, I then designed and implemented an XML data-binding tool for the dynamic generation of XML languages, such as VoiceXML. This was achieved by writing a program to generate Java bean libraries from XML DTDs to read in, manipulate and render out XML documents. Consequently Netdecisions spawned off a new company to exclusively develop voice sites and which later became a market leader (Fluency voice). This allowed the R&D department to focus on new areas of technology. I was assigned to research the area of knowledge discovery and knowledge management. I helped to develop a dynamic grammar framework for the spin-off company. One task involved the dynamic run-time translation of arbitrary Java objects to and from Javascript data structures using reflection. I was given sole responsibility for establishing coding standards and regular code reviews and also frequently ran training sessions and interviewed potential employees.

Reason for leaving: Started a PhD in Artificial Intelligence & Computational Neuroscience.

09/1999 – 03/2000 **Arclight Strategy Systems** **Research & Development**

I was employed as the first member of a new R&D department to add value to their existing software projects. Researched and developed agent technology and knowledge visualisation for use in knowledge discovery. A mark-up language was designed in which meta-data could be extended at run-time. This was visualised using automatically generated VRML. The agents were designed and developed for use on palmtops in wireless LANs. The code was written using Java.

Reason for leaving: Company faced threat of closure and could no longer afford to support research.

02/1999 – 08/1999 **Axcess Media** **A.I. Consultant & Programmer**

Evaluated the technical and computational plausibility of creating adaptive Internet applications and User Interfaces. The focus was on web personalisation, desktop agents and web-site chatterbots for more anthropomorphic Human Computer Interaction. This required sorting through the hype and buzzwords surrounding the existing products in the market place to see what was truly on offer. The role also involved network programming and Internet development using a variety of languages and tools.

Reason for leaving: Contract came to an end.

10/1998 – 02/1999 **A.L. Digital** **Programmer**

Developed and maintained new and existing Internet utilities. This included identifying problems inherent in the original design and creating simple solutions, fixing errors in

existing code and fully documenting the work for future maintainers.

Reason for leaving: Originally hired for my C++ skills yet they were never used.

08/1997 – 10/1997 Context Ltd Programmer

Responsible for creation of object-oriented library and utilities used to assist in the manipulation of tagged, legal text for use on CD-ROMs. Liased with project co-ordinator to analyse the task in hand. I was responsible for design, code, testing and documentation.

Reason for leaving: Started MSc in Evolutionary & Adaptive System.

PUBLICATIONS

Biologically inspired Artificial Intelligence

"Emotion as a Significant Change in Neural Activity." K M Parussel, International Journal of Synthetic Emotions. (2010) 1(1), 51-67.

"Biasing Neural Networks towards Exploration or Exploitation using Neuromodulation." K M Parussel and L Cañamero, ICANN 2007: Proceedings of the 17th International Conference on Artificial Neural Networks Part II. Volume 4669. Springer-Verlag 889-898.

"A Bottom-up Approach to Emulating Emotions using Neuromodulation in Agents". PhD thesis. University of Stirling. 2006.

"Cost minimisation and Reward maximisation. A neuromodulating minimal disturbance system using spike timing-dependent plasticity". K M Parussel and L S Smith. Proceedings of the Symposium on Agents that Want and Like: Motivational and Emotional roots of Cognition and Action at the AISB-05 conference.

Inter-Life

"Inter-Life: a novel, 3-dimensional, virtual learning environment for life transition skills learning." Devlin, A., Lally, V., Sclater, M., and Parussel, K. (2013) Interactive Learning Environments. ISSN 1049-4820 (In Press).

"Evaluation of the Inter-Life virtual world as a creative technology to support the transition to university." Devlin, A.M., Canavan, B., Magill, J., Parussel, K., and Lally, V. (2012) In: British Educational Research Association (BERA) Annual Conference: New Technologies in Education, 4 – 6 September, 2012, University of Manchester, UK.

"Inter-Life as a novel virtual world technology to support the transition into higher education." Devlin, A.M., Canavan, B., Magill, J., Parussel, K., and Lally, V. (2012) In: 5th Annual University of Glasgow Learning and Teaching Conference: Empowering Student Learners in Higher Education, 17th April 2012, Glasgow, Scotland.

“The development of life transition skills in inter-life: a novel, 3-dimensional virtual learning environment.” Devlin, A.M., Lally, V. , Sclater, M., and Parussel, K. (2011) In: Spada, H., Stahl, G., Miyake, N. and Law, N. (eds.) Connecting Computer-Supported Collaborative Learning to Policy and Practice: CSCL 2011 Conference Proceedings. International Society of the Learning Sciences, pp. 874-875.