

Week Starting 8th August

At the beginning of the week, my original plan had been to design the structure of, and begin programming the health-monitoring-at-home project, using the dendritic cell model as described in my previous report. On Monday I was told about the planned meeting with Peter Bentley on Thursday, and read the most relevant of the papers that you gave me, and also some from his website

<http://www.cs.ucl.ac.uk/staff/P.Bentley/>.

Peter Bentley's research includes many areas of 'Digital Biology', but most of the papers available were centred on the genetic algorithm. In one very interesting paper, he applies work from previous papers in representing proteins by sub-sets of the Mandelbrot set to artificial immune systems. He argues that representing antigens and receptors as finite data sets limits the power of the evolution process within AIS, and that an infinite set will help to prevent early convergence on non-optimal solutions. Although the sample results given using this representation for machine learning was poor, its use as a representation for genetic algorithm style problems seems particularly impressive, and the author is optimistic that the representation can be used to good effect for AIS.

I also noticed that a paper you sent me a couple of weeks ago was co-written by Peter Bentley named "Two Ways to Grow Tissue for Artificial Immune Systems", which provides some interesting immune inspired algorithms based on innate immunity as opposed to adaptive.

At the end of the week, I went on to start designing the structure of the health-monitoring-at-home project, with modularity in mind trying to separate 'attribute representation encoding', video analysis, and the dendritic cell model itself, so these could be used in other projects if required.

Whilst I'm in Cornwall, I will be reading Peter Bentley's book "Digital Biology" and will continue in the planning of the gait monitoring project, with a view to implementing it in the following week if this is ok with you.

Thanks again for your time,
Steve.