

# AISB 2010

## **THE 36<sup>TH</sup> ANNUAL CONVENTION**

of the Society for the Study of Artificial  
Intelligence and Simulation of Behaviour  
(AISB 2010)

29 March – 1 April 2010  
Hugh Aston Building  
De Montfort University  
Leicester

For further information visit  
[dmu.ac.uk/aisb2010](http://dmu.ac.uk/aisb2010)  
[www.aisb.org.uk](http://www.aisb.org.uk)



# AISB 2010

## Preface

Dear Esteemed Colleague:

On behalf of the Local Organizing Committee – Welcome to the 2010 Convention of the Society for the Study of Artificial Intelligence and Simulation of Behaviour at De Montfort University in Leicester.

The convention this year is packed with a wide range of papers covering the breadth and depth of the Artificial Intelligence field. The presentations of these papers are spread over four days. During these four days, we will also enjoy other events. First, there are the posters to be displayed in the common area, which we hope will spark discussion across the thin dividing lines between AI and other sciences such as biology, psychology and philosophy.



There are also system demonstrations and tutorials. Specifically, we have Sensitive Artificial Listener demo at the Phoenix Square and NAO robot by Aldebaran Robotics in the Hugh Aston Building. Aldebaran Robotics team will also provide programming tutorial demonstrating the programming capabilities of NAO robot. Furthermore, there is a tutorial by Professor Gérard Duchamp on the subject of “Exactly Solved Models for Collective Behaviour and Complex Systems”.

Finally, we have the exciting symposium revisiting the Turing Test and looking forward to 21<sup>st</sup> Century inspired Comprehensive Intelligence Test symposium. This symposium received the support of the *Office of Navy Research Global (ONRG)* to support potential tests and the recording of its discussions. The Turing Test proved in the past and will always be a contentious discussion topic and a great opener for exciting discussions.

Finally, we have not forgotten about your evening. An AI-Inspired Film Festival has been arranged in conjunction with Phoenix Square where we also hold our plenary talks. The tremendous help received from the Phoenix Square staff is acknowledged with gratitude.

I am very excited about this convention and I hope you will be excited too. Finally, I like to thank everyone who has contributed to the organization of this convention. Without their help and participation - whether it is a small suggestion or an active role - this convention would not have been possible. This large team includes symposium chairs, AISB committee, and local organizing committee.

Special and personal thanks to the convention secretary *Sarah Allen* for her tremendous efforts throughout and to the "Programme layout", as he preferred to be called, *Dr. Bret Battey* for his wonderful help in putting the convention program together.

Welcome my friend and have a wonderful AISB 2010 Convention.

Yours truly,

Dr. Aladdin Ayesb



## Keynote Speakers

There are 3 plenary talks at this year's conference, which will be delivered by leading researchers. The full programme can be found in your delegate bag.

### Prof. Harold Thimbleby, Swansea University

Harold Thimbleby is Professor of Computer Science, Swansea University. He joined the Department in 2005, and he directs the Future Interaction Technology Laboratory, FIT Lab. He is currently a Royal Society Leverhulme Senior Research Fellow.

#### **Numbers to Die 4**

When learning to program, students find it a bit confusing that a sequence of characters like 12.3 needs converting into a number, yet which just happens to be 12.3 too!

By all the evidence, professional programmers still find it confusing: almost every system has number parsing flaws, and many systems (from common programming languages, office software, and medical devices to handheld calculators) even have multiple, inconsistent defects. In safety critical domains, such problems may lead to death as well as to incorrect attribution of user error. The good news is that correct parsing can reduce risk; in particular, we show how to achieve an estimated halving of death rates from "out by ten" drug overdoses, by knowing how to correctly convert sequences of characters like 12.3 into 12.3 and not, say, 123.

People attending this keynote lecture will learn how to get spreadsheets to generate arbitrary expense claims for attending this conference, but the serious, really scary thought is, what else is going wrong with our programming and with our education of programmers if we can't even get the elementary stuff right?

The research reported was supported by a Royal Society Leverhulme Trust Senior Research Fellowship.

**1 - 2 pm, Monday 29th March, 2010 @ Phoenix Square**



Prof. Steve Torrence, University of Sussex

Steve Torrance is interested in materialist and computational theories of consciousness, and in the place of the study of consciousness within science. He is examining the differing conceptions of science and mind that emerge from AI-based cognitive science and from contrasting approaches which are critical of computationalism. This work also involves examining the links between mind and value, and how far consciousness science necessarily interacts with ethics. He is in particular looking at the ethical ramifications of artificial consciousness. He is also interested in enactive or embodied approaches to mind, and has recently organized several meetings on enactive approaches to consciousness including a two-day symposium on enactive perception, which took place at Sussex University in March 2004.

### **Artificial Ethical Intelligence: Technical, Conceptual and Ethical Challenges**

Artificial Ethical Intelligence (AEI) is to ethical intelligence what AI is to general intelligence. As with AI proper, the field of AEI has many ramifications, and presents a number of challenges. It is also of growing urgency, as cognitive and robotic agent systems become increasingly autonomous, and are designed to function in increasingly open and unstructured environments. The technical challenges that are raised by this field can only be addressed against the background of a number of conceptual, or philosophical, questions which concern the ways in which AI and artificial ethics research impacts upon issues in traditional ethics, and vice versa.

For instance: What is the relation between 'functional' autonomy, considered as a goal in artificial agent research, and 'moral' autonomy as elaborated by moral philosophers over centuries? To what extent could an AEI research programme provide us with a full-blooded artificial ethical agent? If only rather impoverished approximations to full ethical agency are possible – at least in the short run – then might artificial moral agents be worse than useless in real live situations? Also, is ethical intelligence all there is to ethical agency, or are there affective, phenomenological, social or other factors which are perhaps less amenable to AI methods? How much genuine moral responsibility might artificial ethical agents (in the shorter or the longer term) be accorded?

There are also more speculative questions that address the wider implications of this kind of research. Given current cognitive technology R&D platforms, could there also be artificial ethical 'patients' (or recipients) as well as ethical 'agents' (or producers) – i.e. artificial agents towards which we have responsibilities, rather than ones which may have duties, responsibilities, etc. to us? Does it make sense to envisage artificial agents as either ethical agents or ethical recipients if they are not also taken to be conscious creatures? How might social, economic, legal and cultural relationships change if our moral constituency is broadened to include this new kind of ethical actor?

This talk will address these and other issues. Many of these questions have been implicit in AI from the beginning, but now they have to be addressed with more focus and clarity as AI enters into the age of Artificial Ethics.

**1 - 2 pm, Tuesday 30th March, 2010 @ Phoenix Square**



Dr. Giorgio Metta, University of Genova

Dr. Giorgio Metta is assistant professor at LIRA-Lab, University of Genova. LIRA-Lab is within the Department of Communication, Computer and Systems Science (DIST) at the University of Genoa. He is also currently a Senior Researcher at the Robotics, Brain and Cognitive Sciences department at the Italian Institute of Technology in Genoa.

### **From biology to robots: the RobotCub project**

Simulating and getting inspiration from biology is certainly not a new endeavor in robotics (Atkeson et al., 2000; Sandini, 1997; Metta et.al. 1999). However, the use of humanoid robots as tools to study human cognitive skills it is a relatively new area of the research which fully acknowledges the importance of embodiment and the interaction with the environment for the emergence of motor skills, perception, sensorimotor coordination, and cognition (Lungarella, Metta, Pfeifer, & Sandini, 2003).

The guiding philosophy - and main motivation - is that cognition cannot be hand-coded but it has to be the result of a developmental process through which the system becomes progressively more skilled and acquires the ability

to understand events, contexts, and actions, initially dealing with immediate situations and increasingly acquiring a predictive capability (Vernon, Metta Sandini, 2007).

To pursue this research, a humanoid robot (iCub) has been developed as result of the collaborative project RobotCub (<http://www.robotcub.org>) supported by the European Commission through the "Cognitive Systems and Robotics" Unit E5 of IST. The iCub has been designed with the goal of studying human cognition and therefore embeds a sophisticated set of sensors providing vision, touch, proprioception, audition as well as a large number

of actuators (53) providing dexterous motor abilities. The project is "open", in the sense of open-source, to build a critical mass of research groups contributing with their ideas and algorithms to advance knowledge on human cognition (N. Nosengo 2009).

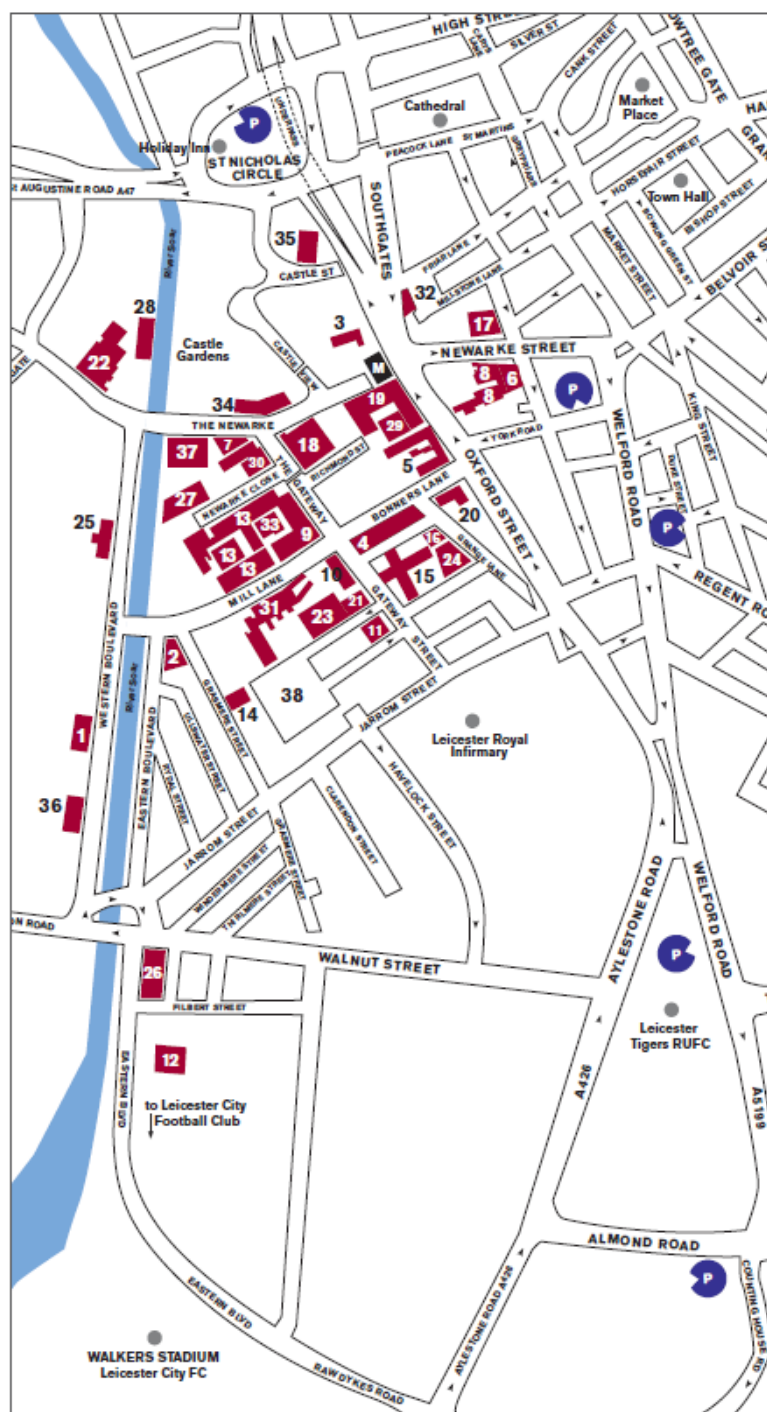
The aim of the talk will be: i) to present the approach and motivation, ii) the illustrated the technological choices made and iii) to present some initial results obtained.

**1 - 2 pm, Wednesday 1st April, 2010 @ Phoenix Square**





## Campus map



### Leicester City map key

- 1 Bede Hall (hall of residence)
- 2 Benjamin Russell (private hall of residence)
- 3 Bosworth House
- 4 Campus Centre Building incorporating Students' Union
- 5 Clephan Building, Humanities
- 6 Crown Building
- 7 Chantry Building
- 8 Elfed Thomas Building
- 9 Enquiry Centre
- 10 Eric Wood Building
- 11 Estates Services Building including Security Office
- 12 Filbert Village (private hall of residence)
- 13 Fletcher Building, Art & Design
- 14 Forensic Science Facility
- 15 Gateway House, Technology and Student Services Centre
- 16 Gosling Court (private hall of residence)
- 17 Grosvenor House (private hall of residence)
- 18 Hawthorn Building, Health & Life Sciences
- 19 Hugh Aston Building, Business & Law
- 20 Innovation Centre
- 21 IOCT (Institute of Creative Technologies)
- 22 John Sandford Sports Centre
- 23 Kimberlin Library
- 24 Kingfisher Court (private hall of residence)
- 25 Bede Island
- 26 Liberty Park (private hall of residence)
- 27 Newarke Point (private hall of residence)
- 28 New Wharf (hall of residence)
- 29 PACE Building (Performance Arts Centre for Excellence)
- 30 Portland Building
- 31 Queens Building, Technology
- 32 Southgate House
- 33 Student Health Centre
- 34 Trinity House
- 35 Victoria Hall (private hall of residence)
- 36 Waterway Gardens (hall of residence)
- 37 John Whitehead Building, Academic Registry and Awards, Cashier, Educational Partnerships
- 38 Staff and visitor car park (advance booking only)
- M The Magazine Gateway



# Guide to Leicester

## Historic City of Leicester (pronounced LES-ter)

Leicester is one of the oldest cities in the UK and lies at the heart of England. With a history dating back around 2,000 years Leicester was once known as Ratae Coritanorum, when under Roman occupancy.

There are still signs of the Roman's legacy scattered around the city, including the best preserved remains, the Roman Baths built between AD 145 and AD 170. Many other Roman artefacts can be found in the Jewry Wall Museum adjacent to the site.

Leicester played a significant role in the history of England, when, in 1265, Simon De Montfort (after who De Montfort University is named) forced King Henry III to hold the first Parliament of England at Leicester Castle, close to the current site of De Montfort University.

During the English Civil War (1638-1645) Leicester was a stronghold of the parliamentarians and was sacked by royalist forces on 30 May 1645.

In the industrial revolution Leicester became well known for hosiery, textiles and footwear. Since the Second World War Leicester has experienced large scale immigration from across the world including the Indian Sub-Continent, Africa, the Caribbean and Eastern Europe.

Leicester is now one of the most ethnically diverse cities in the United Kingdom.

Leicester is surrounded by antiquity and culture and there is plenty to see and do during you stay. We have detailed a few things below and there is also a Leicester guide included in your delegate bag.

## **Newarke Houses Museum & Gardens incorporating the Museum of the Royal Leicestershire Regiment**

Immediately opposite the conference venue is the Newarke Houses Museum. It is composed of two historic houses, Wygston's Chantry House and Skeffington House and tells the story of 20th century Leicester and the history of the Royal Leicestershire Regiment. The museum displays include room settings from the 1950s and 70s, a cinema experience, a collection of toys from Tudor to present day. Two dedicated community galleries tell the story of 'Moving Here' and settling in Leicester. Find out more about Leicester's famous son [Daniel Lambert](#) and visit a 1950s street scene inspired by Wharf Street that includes the Jolly Angler public house, a grocer and a pawnbroker, with sounds and conversations from the times.

Opening Times:

Monday - Saturday: 10.00am - 5.00pm

Sunday: 11.00am - 5.00pm

Telephone: +44 (0)116 225 4980

Email: [museums@leicester.gov.uk](mailto:museums@leicester.gov.uk)



## **Jewry Wall Museum**

At Jewry Wall Museum you can discover the archaeology of Leicester's past and find out about the people of Leicester from Prehistoric times to the Medieval period. The museum grounds contain one of Leicester's most famous landmarks, the [Jewry Wall](#). Part of the Roman towns' public [baths](#) and thought to be one of the tallest surviving pieces of Roman masonry in the country.

The celebration of Leicester's Roman history continues inside the museum, with stunning collections including detailed mosaics, intricate painted wall plaster and a beautiful Roman cavalry helmet cheekpiece.

Complementing the Roman archaeology collections, there are fascinating artefacts from other eras, from ancient stone tools to striking Medieval decorated tiles from Leicester Abbey.

Open daily: 11.00am - 4.30pm (February - October)

Telephone: +44 (0)116 225 4971

Email: [museums@leicester.gov.uk](mailto:museums@leicester.gov.uk)

## **New Walk Museum and Art Gallery**

Close to the Belmont Hotel, one of the conference hotels, is the new Walk Museum and Art Gallery. It houses collections as diverse as geology, photography, Egyptology, natural history and fine art, including a collection of German Expressionist art.

### **Opening Times:**

Monday - Saturday: 10.00am - 5.00pm

Sunday: 11.00am - 5.00pm

Telephone: +44 (0)116 225 4900

Email: [museums@leicester.gov.uk](mailto:museums@leicester.gov.uk)

## **Useful Numbers**

### **Conference Secretary, Sarah Allen**

T: 0116 250 6215

M: 07779 622 879

### **Belmont House Hotel**

T: 0116 2529602

### **Premier Inn**

T: 0870 111 2844

### **Ibis Hotel**

T: 0116 248 7200

### **Leicester Tourist Information Office**

T: 0116 225 4000

### **Swift Fox Taxis**

T: 0116 26 28 222





## Conference Evening Meal

The Belmont is an independent family owned Hotel in the heart of Leicester. Situated in pretty New Walk, a Victorian conservation area, we are minutes walk from Leicester train station, Leicester and De Montfort Universities and the best shopping the city has to offer. The Hotel is the highest AA rated 3\* in Leicester.

The buildings that the Belmont Hotel occupies were all built by a man called William Rushkin between 1862 and 1865 as part of the rapid growth of Victorian Leicester. When first built they sat in green fields alongside the famous New Walk, originally the Roman road connecting Ratae (Leicester) with Colchester, which the Town Council, in its wisdom, declared a pedestrian thoroughfare in 1785, believed to be the first of its kind in England.



### Conference Meal

There will be an official AISB conference evening meal taking place on Wednesday 31<sup>st</sup> March 2010, at the Belmont House Hotel, De Montfort Street, Leicester.

IF you have not already registered for the conference meal then you may do so contacting Sarah Allen at the main registration desk or by booking on-line through the AISB conference website. The meal costs £35 for a three course banquet and it also includes complimentary wine.

### Directions

From The Hugh Aston Building turn right onto Oxford Street and cross at the pedestrian traffic lights. Continue straight down Millstone Lane and turn right onto Market Street/Kings Street, turn left onto New Walk and the Belmont House Hotel is further up on your left hand side. It is situated on the corner of New Walk and De Montfort Street.

Please arrive for 7:00pm for a 7:30 start. **There are 70 free spaces.**

## Phoenix Square

The Phoenix Square Film & Digital Media is based in the heart of Leicester's emerging Cultural Quarter, Phoenix Square Film & Digital Media houses state of the art cinemas, digital gallery spaces, an interactive cafe bar and film production facilities with editing suites - capable of hosting festivals, seminars & conferences. This unique space is set to be a hub of activity for the region. It is an educational charity with a remit to enhance moving image and new media work. [www.phoenix.org.uk](http://www.phoenix.org.uk)

About Blueprint Blueprint is the East Midlands based joint venture between East Midlands Development Agency (emda), the Housing and Communities Agency (HCA) and sustainable investor Igloo Regeneration, an Aviva Investors' Fund. Blueprint are leading the way in promoting environmental, economic and social sustainability in property development. Blueprint is responsible for the development of Phoenix Square. [www.blueprintregeneration.com](http://www.blueprintregeneration.com)

The Leicester City Council Leicester is revitalising the St George's South area of the city through a programme of culture led regeneration. Phoenix Square is the third major council backed project to be completed. Curve, Leicester's award winning performing art's centre (opened in 2008) and the LCB Depot which offers start up units to creative businesses, was completed in 2004. The LCB Depot team will manage the 30 new workspaces at Phoenix Square. [www.leicester.gov.uk/phoenixsquare](http://www.leicester.gov.uk/phoenixsquare) [www.oneleicester.com](http://www.oneleicester.com)

De Montfort University is one of the UK's leading modern universities, with a wide range of professional and creative courses at undergraduate and postgraduate level, underpinned by world-leading research. The University has over 20,000 students studying over 400 courses at its campus in Leicester. De Montfort University has supported the development of Phoenix Square through its academic experts and world leading research and has also invested £1 million (£750,000 capital support and £250,000 revenue support) in the DMU Cube (gallery) at Phoenix Square, which will showcase the latest research in media and related creative technologies. [www.dmu.ac.uk](http://www.dmu.ac.uk)

**The AISB convention will include plenary talks hosted at the Phoenix Square as well as an opportunity to view movies for just £3.80 on presenting your delegate name badge.**





The following people and organisations are kindly acknowledged for their support:

**AISB 2010 Convention Organization Team**

**Convention Chair**

Dr. Aladdin Ayesb

**Convention Secretary**

Miss. Sarah Allen

**Convention Program**

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**Phoenix Square Team**

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Mr. Andrew Jones

Mr. Chris Tyre

Mr. Alan Alderson-Smith

**AISB Committee**

**Symposium Chairs and Proceeding Editors**

