

# MONDAY 5TH AUGUST

9:00	Welcome: <span style="float: right;"><i>Bridget Hallam</i></span>
9:30	“ <b>The Origin of ‘Feel’</b> ” <span style="float: right;"><i>Kevin O’Regan</i></span>
10:30	Coffee
11:00	<b>SESSION I: Perception</b> <span style="float: right;"><i>Dario Floreano</i></span> “Active Perception: A Sensorimotor Account of Object Categorization” <span style="float: right;"><i>Stefano Nolfi and Davide Marocco</i></span> “Environment-Specific Novelty Detection” <span style="float: right;"><i>Stephen Marsland, Ulrich Nehmzow and Jonathan Shapiro</i></span> “On the Use of Sensors in Self-Reconfigurable Robots” <span style="float: right;"><i>K. Støy and W.-M. Shen and P. Will</i></span>
12:15	LUNCH break
14:30	<b>SESSION II: Action Selection</b> <span style="float: right;"><i>Jean-Arcady Meyer</i></span> “Behaviour Selection on a Mobile Robot using W-learning” <span style="float: right;"><i>Martin Hallerdal and John Hallam</i></span> “Comparing a Brain-inspired Robot Action Selection Mechanism with Winner-takes-all” <span style="float: right;"><i>Benoît Girard, Vincent Cuzin, Agnès Guillot, Kevin Gurney, and Tony J. Prescott</i></span> “Competitative Foraging, Decision Making, and the Ecological Rationality of the Matching Law” <span style="float: right;"><i>Anil K. Seth</i></span>
15:45	Tea break
16:20	<b>Poster Spotlights 1</b> <span style="float: right;"><i>Peter Todd</i></span> “Navigation in Unforeseeable and Unstable Environments: A Taxonomy of Environments” <span style="float: right;"><i>Laurent Signac and Jean-Denis Fouks</i></span> “Whisking: An Unexplored Sensory Modality” <span style="float: right;"><i>Max Lungarella, Verena V. Hafner, Rolf Pfeifer, and Hiroshi Yokoi</i></span> “Using IIDs to Estimate Sound Source Direction” <span style="float: right;"><i>Leslie S. Smith</i></span> “Adaptive Leg Placement Strategies in the Fruit Fly set an Example for Six-legged Walking Systems” <span style="float: right;"><i>Simon Pick and Roland Strauss</i></span> “Behavior Coordination for a Mobile Visuo-Motor System in an Augmented Real-World Environment” <span style="float: right;"><i>Dimitrij Surmeli and Horst-Michael Gross</i></span> “Compromise Candidates in Positive Goal Scenarios” <span style="float: right;"><i>Frederick L. Crabbe</i></span>
16:40	<b>SESSION III: Internal Considerations</b> “Self Organisation in a Simple Task of Motor Control” <span style="float: right;"><i>Christian R. Linder</i></span> “An Evolutionary Approach to Quantify Internal States Needed for the Woods Problem” <span style="float: right;"><i>DaeEun Kim and John Hallam</i></span>
17:30	“FET: Complex Systems and Robotics” <span style="float: right;"><i>Ralph Dum</i></span>

# TUESDAY 6TH AUGUST

9:00	<p><b>“Pulses (Probably) and Strange Neural Hardware”</b>  <i>Alan Murray</i></p>
10:00	Coffee
10:30	<p><b>Poster Spotlights 2</b> <span style="float: right;"><i>Jason Noble</i></span></p> <p>“Relating Behavior Selection Architectures to Environmental Complexity”  <i>Orlando Avila-García, Elena Hafner and Lola Cañamero</i></p> <p>“Learning Default Mappings and Exception Handling”  <i>Fredrik Linaker and Nicklas Bergfeldt</i></p> <p>“Asynchronous Learning by Emotions and Cognition”  <i>Sandra Clara Gadanho and Luis Custodio</i></p> <p>“Behaviour Control Using a Functional and Emotional Model”  <i>Ignasi Cos and Gillian Hayes</i></p> <p>“The Road Sign Problem Revisited: Handling Delayed Response Tasks with Neural Robot Controllers”  <i>Mikael Thieme and Tom Ziemke</i></p> <p>“Development of the First Sensory-motor Stages: A Contribution to Imitation”  <i>Pierre Andry, Philippe Gaussier, and Jacqueline Nadel</i></p>
11:00	<p><b>SESSION IV: Neural Networks</b></p> <p>“Evolution of a Circuit of Spiking Neurons for Phototaxis in a Braitenberg Vehicle”  <i>R. L. B. French and R. I. Dampier</i></p> <p>“Localization of Function in Neurocontrollers”  <i>Lior Segev, Ranit Aharonov, Isaac Meilijson, and Eytan Ruppin</i></p> <p>“Using a Net to Catch a Mate: Evolving CtrNNs for the Dowry Problem”  <i>Elio Tuci, Inman Harvey, and Peter M. Todd</i></p>
12:15	LUNCH break
14:30	<p><b>SESSION V: Multi-agent Systems</b> <span style="float: right;"><i>John Hallam</i></span></p> <p>“Minimalist Coherent Swarming of Wireless Networked Autonomous Mobile Robots”  <i>Julien Nembrini, Alan Winfield, and Chris Melhuish</i></p> <p>“Phonemic Coding Might Result from Sensory-motor Coupling Dynamics”  <i>Pierre-yves Oudeyer</i></p> <p>“Constructing Complex Minds through Multiple Authors”  <i>Mark Humphrys and Ciarán O’Leary</i></p>
15:45	Tea break

16:20	<p><b>Poster Spotlights 3</b> <span style="float: right;"><i>Agnès Guillot</i></span></p> <p>"The Digital Hormone Model for Self-Organization" <i>Wei-Min Shen and Cheng-Ming Chuong</i></p> <p>"Fast Homeostatic Neural Oscillators Induce Radical Robustness in Robot Performance" <i>Ezequiel A. Di Paolo</i></p> <p>"Evolving Hierarchical Coordination in Simulated Annelid Locomotion" <i>Edgar E. Vallejo and Fernando Ramos</i></p> <p>"Small is Beautiful: Near Minimal Evolutionary Neurocontrollers Obtained with Self-Organizing Compressed Encoding" <i>Shlomy Boshy and Eytan Ruppín</i></p> <p>"How Useful is Lifelong Evolution for Robotics?" <i>Joanne Walker and Myra Wilson</i></p> <p>"What is Important for Realizing an Autonomous Interactive Robot?" <i>Takanori Komatsu, Kentaro Suzuki, Natsuki Oka, Kazuhiro Ueda, Kazuo Hiraki</i></p>
16:40	<p><b>SESSION VI: Navigation</b></p> <p>"Global Localization and Topological Map Learning for Robot Navigation" <i>David Filliat and Jean-Arcady Meyer</i></p> <p>"Learning to Autonomously Select Landmarks for Navigation and Communication" <i>Jason Fleischer and Stephen Marsland</i></p>
17:30 – 19:30	<p style="text-align: center;"><b>POSTER SESSION ONE</b></p> <p style="text-align: center;">Spotlight groups 1, 2, and 3 above, in concourse outside coffee room</p>

# WEDNESDAY 7TH AUGUST

9:00	<p><b>“From structure and materials to flight behaviour: Fitness for purpose in insect wings”</b> <span style="float: right;"><i>Robin Wootton</i></span></p>
10:00	Coffee
10:30	<p><b>Poster Spotlights 4</b> <span style="float: right;"><i>Ulrich Nehmzow</i></span></p> <p>“Evolvability and Analysis of Robot Control Networks” <span style="float: right;"><i>Tom Smith, Phil Husbands, and Michael O’Shea</i></span></p> <p>“Co-evolving Robot Soccer Behavior” <span style="float: right;"><i>Esben Østergaard and Henrik Hautop Lund</i></span></p> <p>“Conditions for the Evolution of Mimicry” <span style="float: right;"><i>Daniel W. Franks and Jason Noble</i></span></p> <p>“Ecological Disturbance Maintains and Promotes Biodiversity in an Artificial Plant Ecology” <span style="float: right;"><i>Ben Clark and Seth Bullock</i></span></p> <p>“Multi-object Segregation: Ant-like Brood Sorting Using Minimalism Robots” <span style="float: right;"><i>Matt Wilson, Chris Melhuish, and Ana Sendova-Franks</i></span></p> <p>“Building Adaptive Structure Formations with Decentralised Control and Coordination” <span style="float: right;"><i>Jan Wessnitzer, and Chris Melhuish</i></span></p>
11:00	<p><b>SESSION VII: The Effect of Hardware</b></p> <p>“Agent-based Modelling and the Environmental Complexity Thesis” <span style="float: right;"><i>Anil K. Seth</i></span></p> <p>“A Method for Isolating Morphological Effects on Evolved Behaviour” <span style="float: right;"><i>Josh C. Bongard and Rolf Pfeifer</i></span></p> <p>“An Activation Based Behaviour Control Architecture for Walking Machines” <span style="float: right;"><i>Jan Albiez, Tobias Luksch, Karsten Berns, and Rüdiger Dillmann</i></span></p>
12:15	LUNCH break

Demos and lab tours have been arranged for the afternoon, details to follow.

# THURSDAY 8TH AUGUST

9:00	<p><b>“Learning and Imitation in Humanoid Robots”</b> <i>Stefan Schaal</i></p>
10:00	Coffee
10:30	<p><b>Poster Spotlights 5</b> <span style="float: right;"><i>Herb Roitblat</i></span></p> <p>“Sharing a Charging Station without Explicit Communication in Collective Robotics” <i>Angélica Muñoz-Meléndez, François Sempe, and Alexis Drogoul</i></p> <p>“Towards a Quantitative Analysis of Individuality and its Maintenance” <span style="float: right;"><i>Alexandra Penn</i></span></p> <p>“Learning Social Behaviors without Sensing” <span style="float: right;"><i>Anand Panangadan and Michael G. Dyer</i></span></p> <p>“Spatial Coordination through Social Potential Fields and Genetic Algorithms” <span style="float: right;"><i>Fabien Flacher and Olivier Sigaud</i></span></p> <p>“Learning in Multi-Robot Scenarios through Physically Embedded Genetic Algorithms” <span style="float: right;"><i>Ulrich Nehmzow</i></span></p> <p>“Designing Social Force: Control for Collective Behavior of Learning Individuals” <span style="float: right;"><i>Keiki Takadama and Katsunori Shimohara</i></span></p>
11:00	<p><b>SESSION VIII: Vision</b></p> <p>“Genetic Programming for Robot Vision” <span style="float: right;"><i>Martin C. Martin</i></span></p> <p>“Visual Orientation and Motion Control of MAKRO – Adaptation to the Sewer Environment” <span style="float: right;"><i>Marina Kolesnik and Hermann Streich</i></span></p> <p>“Active Vision and Feature Selection in Evolutionary Behavioral Systems” <span style="float: right;"><i>Davide Marocco and Dario Floreano</i></span></p>
12:15	LUNCH break
14:30	<p><b>SESSION IX: Learning</b> <span style="float: right;"><i>Tony Prescott</i></span></p> <p>“Timed Delivery of Reward Signals in an Autonomous Robot” <span style="float: right;"><i>William H. Alexander and Olaf Sporns</i></span></p> <p>“Using Markovian Decision Problems to Analyze Animal Performance in Random and Variable Ratio Schedules of Reinforcement” <span style="float: right;"><i>Jérémie Jozefowicz, Jean-Claude Darcheville, and Philippe Preux</i></span></p> <p>“Testing the Ecological Rationality of Base Rate Neglect” <span style="float: right;"><i>Peter M. Todd and Adam S. Goodie</i></span></p>
15:45	Tea break

16:20	<p><b>Poster Spotlights 6</b> <span style="float: right;"><i>Barbara Webb</i></span></p> <p>“Sequential Task Execution in a Minimalist Distributed Robotic System” <i>Chris Jones and Maja J. Mataric</i></p> <p>“Fleet Dynamics and Information Exchange Simulation Modeling with Artificial Neural Networks” <i>Michel Dreyfus-Leon and Daniel Gaertner</i></p> <p>“Synthetic Social Relationships in Animated Virtual Characters” <i>Bill Tomlinson and Bruce Blumberg</i></p> <p>“Can a Dog tell the Difference ? Dogs Encounter AIBO, an Animal-like Robot in Two Social Situations” <i>Enikő Kubinyi, Ádám Miklósi, Frédéric Kaplan, Márta Gácsi, József Topál, and Vilmos Csányi</i></p> <p>“Exploring the Impact of Contextual Input on the Evolution of Word-meaning” <i>Paul Vogt and Hans Coumans</i></p> <p>“Language Adaptation Helps Language Acquisition” <span style="float: right;"><i>Willem Zuidema</i></span></p>
16:40	<p><b>SESSION X: Sensory-motor Couplings</b></p> <p>“A Context-based Architecture for General Problem Solving” <i>R. C. Peterson</i></p> <p>“Articulation of Sensory-Motor Experiences by “Forwarding Forward Model”: From Robot Experiments to Phenomenology” <span style="float: right;"><i>Jun Tani</i></span></p>

## Poster Session 2

From 17:30 until 19:30 is poster viewing time. Some really excellent posters are out there – make sure you don’t miss them!

# FRIDAY 9TH AUGUST

9:30	<p><b>“Action from thoughts: Building a neuroprosthesis to restore neurological function”</b> <span style="float: right;"><i>Miguel Nicolelis</i></span></p>
10:30	Coffee
11:00	<p><b>SESSION XI: Biological Simulations</b> <span style="float: right;"><i>Bridget Hallam</i></span></p> <p>“Cortico-Hippocampal Maps and Navigation Strategies in Robots and Rodents” <span style="float: right;"><i>Jean Paul Banquet,</i></span> <span style="display: block; text-align: center;"><i>Philippe Gaussier, Mathias Quoy, Arnaud Revel, and Yves Burnod</i></span></p> <p>“Simulations of Learning and Behaviour in the Hawkmoth <i>Deilephila elpeno</i>” <span style="float: right;"><i>Anna Balkenius, Almut Kelber, and Christian Balkenius</i></span></p> <p>“Introducing Chronicity: a Quantitative Measure of Self/Non-self in the Immune Response” <i>Yoshiki Kashimori,</i> <span style="float: right;"><i>Yoshihiro Ochi, MeiHong Zheng, and Takeshi Kambara</i></span></p>
12:15	LUNCH break
14:30	<p><b>SESSION XII: Evolving Neurocontrollers</b> <span style="float: right;"><i>Christian Balkenius</i></span></p> <p>“Levels of Dynamics and Adaptive Behavior in Evolutionary Neural Controllers” <span style="float: right;"><i>Jesper Blynel and Dario Floreano</i></span></p> <p>“Evolving Integrated Controllers for Autonomous Learning Robots using Dynamic Neural Networks” <span style="float: right;"><i>Elio Tuci, Inman Harvey, and Matt Quinn</i></span></p> <p>“Evolution of Efficient Swimming Controllers for a Simulated Lamprey” <span style="float: right;"><i>Jimmy (Hajime) Or, John Hallam, David Willshaw, and Auke Ijspeert</i></span></p>
15:45	Discussion of conference