### Preliminary Programme – Draft 4.0

#### Monday 2nd September

- **Workshops session #1**
  - Roberto Cipolla
  - 9:00 – 10:00
  - Coffee break: 10:45 – 11:15

#### Tuesday 3rd September

- **Coffee Break – Posters (10:00 – 10:30)**
  - Sessions #1
  - 10:30 – 13:00
  - Steve Oliver
  - 10:30 – 11:30
  - 4 parallel sessions
  - Sessions #2
  - 11:35 – 13:15
  - 4 parallel sessions

- **Lunch - Posters (13:30 – 14:30)**
  - Roberto Cingolani
  - 14:30 – 15:30
  - Dario Floreano
  - 14:30 – 15:30
  - Henrik Hautop Lund
  - 14:30 – 15:30

#### Wednesday 4th September

- **Coffee Break - Posters (15:30 – 16:30)**
  - Session #3
  - 16:00 – 18:55
  - 4 parallel sessions
  - Session #4
  - 16:00 – 18:30
  - 4 parallel sessions

- **Poster Inauguration & Poster Session**
  - Start at 19:00

- **Closing Ceremony**
  - 18:30 – 19:00
  - Social Dinner
  - Start at 20:30
  - Social Tour
  - Start at 18:40

- **Workshops session #3**
  - 14:30 – 18:30

- **Coffee break: 16:15 – 16:45**

#### Thursday 5th September

- **Sessions #6**
  - 10:30 – 12:10
  - 3 parallel sessions
  - Bernhard Palsson
  - 12:15 – 13:15

#### Friday 6th September

- **Registration (8:30 – 9:00)**
  - Roberto Cipolla
  - 9:00 – 10:00
  - Rolf Pfeifer
  - 9:00 – 10:00
  - Martin Hanczyc
  - 9:00 – 10:00
  - Didier Keymeulen
  - 9:00 – 10:00
# ECAL 2013 - Tutorials Program

## Tutorial session #1 - Tuesday 3rd September, 17:00 – 19:00

<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PyCX: A Python-Based Simulation Code Repository for Complex Systems Education</td>
<td>Designing Adaptive Humanoid Robots Through the FARSA Open-Source Framework</td>
<td>Hiroki Sayama</td>
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<td>Next Generation Sequencing Data Production, Analysis, and Archiving</td>
<td>Heiko Muller &amp; Luca Zammataro</td>
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<td>Exploring Prebiotic Chemistry Spaces</td>
<td>Jakob L. Andersen, Christoph Flamm, &amp; Daniel Merkle</td>
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## Tutorial session #2 - Friday 6th September, 14:30 – 16:30

<table>
<thead>
<tr>
<th>Session</th>
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<tbody>
<tr>
<td>Cell Pathway Design for Biotechnology and Synthetic Biology</td>
<td></td>
<td>Claudio Angione, Jole Costanza, Giovanni Carapezza, Pietro Liô &amp; Giuseppe Nicosia</td>
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</tbody>
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Tuesday 3rd September

General track  ECAL 2013 #1 – September 3, session 10:30-13:00 – room: A
Chair: TBA

10:30  Impact of Personal Fabrication Technology on Social Structure and Wealth Distribution: An Agent-Based Simulation Study
       Amber Ferger, Wai Fai Lau, Philipp Ross, Wyman Zhao, Hiroki Sayama and Steen Rasmussen

10:55  The detection of intermediate-level emergent structures and patterns
       Marco Villani, Alessandro Filisetti, Stefano Benedettini, Andrea Roli, David Avra Lane and Roberto Serra

11:20  Evolution of G-P mapping in a von Neumann Self-reproducer within Tierra
       Declan Baugh and Barry McMullin

11:45  Indirectly Encoded Sodarace for Artificial Life
       Paul Szerlip and Kenneth Stanley

12:10  Empowerment and State-dependent Noise - An Intrinsic Motivation for Avoiding Unpredictable Agents
       Christoph Salge, Cornelius Glackin and Daniel Polani

12:35  Spatial Organisation of Cooperation with Contingent Agent Migration
       Pierre Buesser and Marco Tomassini

General track  ECAL 2013 #2 – September 3, session 10:30-13:00 – room: B
Chair: TBA

10:30  Prebiotic Evolution of Molecular Assemblies: From Molecules to Ecology
       Omer Markovitch and Doron Lancet

10:55  Information Aggregation Mechanisms in Social Odometry
       Roman Miletitch, Vito Trianni, Alexandre Campo and Marco Dorigo

11:20  Evolved digital ecosystems: Dynamic steady state, not optimal fixed point
       Randal Olson, Masoud Mirmomeni, Tim Brom, Eric Bruger, Arend Hintze, David Knoester and Christoph Adami

11:45  Self-organized game dynamics in complex networks
       Flavio L. Pinheiro, Vítor V. Vasconcelos, Francisco C. Santos and Jorge M. Pacheco

12:10  Synthetic signalling protocell networks as models of neural computation
       Matthew Egbert, Gerd Gruenert, Gabi Escuela and Peter Dittrich

12:35  Autocatalysis Before Enzymes: The Emergence of Prebiotic Chain Reactions
       Nathaniel Virgo and Takashi Ikegami
Bioinspired Robotics I – September 3, session 10:30-12:35 – room: C
Chair: TBA

10:30  Evolving Error Tolerance in Biologically-Inspired iAnt Robots
       Joshua Hecker, Karl Stolleis, Bjorn Swenson, Kenneth Letendre and
       Melanie Moses

10:55  Exploiting Dynamical Complexity in a Physical Tensegrity Robot to Achieve
       Locomotion
       Mark Khazanov, Ben Humphreys, William Keat and John Rieffel

11:20  Conformity and Nonconformity in Collective Robotics: A Case Study
       Gregory Vorobyev, Andrew Vardy and Wolfgang Banzhaf

11:45  Speciation Dynamics: Generating Selective Pressure Towards Diversity
       Heiko Hamann

12:10  Heterogeneous complexification strategies robustly outperform homogeneous
       strategies for incremental evolution
       Adam Stanton and Alastair Channon

Synthetic and Systems Biochemistry and Biological Control – September 3, session
10:30–13:00 – room: D
Chair: TBA

10:30  Synthetic biology manipulations in 3D printed wet-ware
       Leroy Cronin

10:55  Steady state analysis of a vesicle bioreactor with mechanosensitive channels
       Ben Shirt-Ediss, Ricard Solé and Kepa Ruiz-Mirazo

11:20  Recent advancements in synthetic cells research
       Pasquale Stano, Erica D’Aguanno, Paolo Carrara, Alfred Fahr and Pier
       Luigi Luisi

11:45  Evolution of Cheating DNA-based Agents Playing the Game of Rock-Paper-
       Scissors
       Nathanael Aubert, Quang Huy Dinh, Masami Hagiya, Hitoshi Iba,
       Teruo Fujii, Nicolas Bredeche and Yannick Rondelez

12:10  Barrier Trees for Metabolic Adjustment Landscapes
       Christoph Flamm, Chris Hemmingsen and Daniel Merkle

12:35  Reconstitution of the protein synthesis system on a glass microchip
       Yoshihiro Shimizu and Yo Tanaka
Chair: TBA

11:35  *Coevolutionary Dynamics Caused by Asymmetries in Predator-Prey and Morphology-Behavior Relationships*  
Takashi Ito, Marcin Pilat, Reiji Suzuki and Takaya Arita

12:00  *The Effect of the Environment in the Synthesis of Robotic Controllers: A Case Study in Multi-Robot Obstacle Avoidance using Distributed Particle Swarm Optimization*  
Ezequiel Di Mario, Iñaki Navarro and Alcherio Martinoli

12:25  *Boolean network robotics as an intermediate step in the synthesis of finite state machines for robot control*  
Lorenzo Garattoni, Andrea Roli, Matteo Aducci, Carlo Pinciroli and Mauro Birattari

12:50  *Insect Type MEMS Micro Robot Controlled by CMOS IC of Hardware Neural Networks*  
Minami Takato, Shinpei Yamasaki, Shiho Takahama, Junichi Tanida, Ken Saito and Fumio Uchikoba

Chair: TBA

11:35  *GOLEM: Generator Of Life Embedded into MMOs*  
Andrea Guarneri, Dario Maggiorini, Laura Anna Ripamonti and Marco Trubian

12:00  *The insect Mushroom Bodies: a paradigm of neural reuse*  
Paolo Arena, Luca Patanè and Roland Strauss

12:25  *The role of arousal in embodying the cueXdeficit model in multi-resource human-robot interaction*  
Kiril Kiryazov and Robert Lowe

12:50  *On the evolution of self-organised role-allocation and role-switching behaviour in swarm robotics: a case study*  
Elio Tuci, Boris Mitavskiy and Gianpiero Francesca

Chair: TBA

11:35  *Autonomous construction of synthetic cell membrane*  
Yutetsu Kuruma, Hideaki Matsubayashi and Takuya Ueda

12:00  *The ALife Zoo: cross-browser, platform-agnostic hosting of Artificial Life simulations*  
Simon Hickinbotham, Michael Weeks and James Austin
Wednesday 4th September

**12:25**  *In silico evolution of transferable genetic elements*
Dusan Misevic, Antoine Frenoy and François Taddei

**12:50**  *Cyclic Behavior in Gene-Culture Coevolution Mediated by Phenotypic Plasticity in Language*
Tsubasa Azumagakito, Reiji Suzuki and Takaya Arita

### Artificial Immune, Neural and Endocrine Systems – September 4, session 11:35–12:25 – room: D
Chair: TBA

**11:35**  *Image Similarity Search using a Negative Selection Algorithm*
Stein Keijzers, Peter Maandag, Elena Marchiori and Ida Sprinkhuizen-Kuyper

**12:00**  *EMANN - a model of emotions in an artificial neural network*
Ronald Thenius, Payam Zahadat and Thomas Schmickl

### Bioinspired Learning and Optimization – September 4, session 12:25–13:15 – room: D
Chair: TBA

**12:25**  *Using explicit averaging fitness for studying the behaviour of rats in a maze*
Ariadne Costa, Patrícia Vargas and Renato Tinós

**12:50**  *Quantifying the Impact of Parameter Tuning on Nature-Inspired Algorithms*
Matthew Crossley, Andy Nisbet and Martyn Amos
General track  ECAL 2013 #6 – September 4, session 16:00-18:55 – room: A
Chair: TBA

16:00  *An artificial lizard regrows its tail (and more): regeneration of 3-dimensional structures with hundreds of thousands of artificial cells*
      Alessandro Fontana and Borys Wrobel

16:25  *Simulating Sleeping Sickness: a two host agent-based model*
      Simon Alderton and Jason Noble

16:50  *The role of backward reactions in a stochastic model of catalytic reaction networks*
      Alessandro Filisetti, Alex Graudenzi, Chiara Damiani, Marco Villani and Roberto Serra

17:15  *Ballistic Action Planning in Robotics by means of Artificial Imagery*
      Alessandro Di Nuovo, Davide Marocco, Santo Di Nuovo and Angelo Cangelosi

17:40  *Exploring the Role of the Tail in Bipedal Hopping through Computational Evolution*
      Jared Moore, Anne Gutmann, Craig McGowan and Philip McKinley

18:05  *An alife game to teach evolution of antibiotic resistance*
      Guillaume Beslon, Bérénice Batut, David P. Parsons, Dominique Schneider and Carole Knibbe

18:30  *Evolution of Incremental Complex Behavior on Cellular Machines*
      Stefano Nichele and Gunnart Tufte

General track  ECAL 2013 #7 – September 4, session 16:00-18:55 – room: B
Chair: TBA

16:00  *A-Bees See: A Simulation to Assess Social Bee Visual Attention During Complex Search Tasks*
      Zoe Bukovac, Alan Dorin and Adrian Dyer

16:25  *Cell Division Behaviour in a Heterogeneous Swarm Environment*
      Adam Erskine and Michael Herrmann

16:50  *Social Inhibition Manages Division of Labour in Artificial Swarm Systems*
      Payam Zahadat, Karl Crailsheim and Thomas Schmickl

17:15  *Controlling Ant-Based Construction*
      Lenka Pitonakova and Seth Bullock

17:40  *ASAP: an Ant resource Search Algorithm for swarm-like P2P networks*
      António Homem Ferreira and Carlos Martinho
Wednesday 4th September

Bioinspired Robotics II – September 4, session 16:00-18:55 – room: C
Chair: TBA

16:00  
*From Microbiology to Microcontrollers: Robot Search Patterns Inspired by T Cell Movement*
  
G. Matthew Fricke, Francois Asperti-Boursin, Joshua Hecker, Judy Cannon and Melanie Moses

16:25  
*An evolutionary approach to road following: a simulated case study*
  
Sebastian Clarke, Frederic Labrosse, Vito Trianni and Elio Tuci

16:50  
*A Situated and Embodied Model of Ant Route Navigation*
  
Andrew Philippides, Bart Baddeley, Phil Husbands and Paul Graham

17:15  
*Artificial Reaction Network Agents*
  
Claire E. Gerrard, John Mccall, George Coghill and Christopher Macleod

17:40  
*A Neuromechanical Controller of a Hexapod Robot for Walking on Sponge, Gravel and Snow Surfaces*
  
Xiaofeng Xiong, Florentin Woergoetter and Poramate Manoonpong

ICARIS – September 4, session 16:00-18:55 – room: D
Chair: TBA

16:00  
*Immune-Inspired Error Detection for Multiple Faulty Robots in Swarm Robotics*
  
Huikeng Lau, Iain Bate and Jon Timmis

16:25  
*An Artificial Immune System-based Many-Objective Optimization Algorithm with Network Activation Scheme*
  
Wilburn W. P. Tsang and Henry Y. K. Lau
16:50  *The use of Agent-based Simulation to Discover Extreme Cases in Immune-Interactions with Early-Stage Cancer Scenarios*  
Grazziela Figueredo, Peer-Olaf Siebers, Douglas Augusto, Helio Barbosa and Uwe Aickelin

17:15  *Learning to Solve Bin Packing Problems with an Immune Inspired Hyper-heuristic*  
Kevin Sim, Emma Hart and Ben Paechter

17:40  *Automated calibration of agent-based immunological simulations*  
Mark Read, Magnus Tripp, Hannah Leonova, Louis Rose and Jon Timmis

18:05  *Real-Valued Negative Databases*  
Dongdong Zhao and Wenjian Luo

18:30  *An immune network approach for self-adaptive ensembles of autonomic components: a case study in swarm robotics*  
Nicola Capodieci, Emma Hart and Giacomo Cabri
Thursday 5th September
session #4 - ECAL 2013

General track  ECAL 2013 #8 – September 5, session 10:30-13:00 – room: A
Chair: TBA

10:30  Evolution of Tail-Call Optimization in a Population of Self-Hosting Compilers
       Lance Williams

10:55  Controlling development and chemotaxis of soft-bodied multicellular
       animats with the same gene regulatory network
       Michal Joachimczak, Taras Kowalíw, Rene Doursat and Borys Wrobel

11:20  Cooperation, Congestion and Chaos in Concurrent Computation
       Mizuki Oka, Takashi Ikegami, Alex Woodward, Yiqing Zhu and
       Kazuhiko Kato

11:45  Tipping points in Complex Coupled Life-Environment Systems
       James Dyke and Iain Weaver

12:10  Emergence of diverse behaviors from interactions between nonlinear
       oscillator complex networks and a musculoskeletal system
       Hiroki Mori, Yuzi Okuyama and Minoru Asada

12:35  A Temporal Pattern Predictor for Virtual Characters
       Micah Rosenkind, David Arnold and Graham Winstanley

General track  ECAL 2013 #9 – September 5, session 10:30-13:00 – room: B
Chair: TBA

10:30  FARSA: An Open Software Tool for Embodied Cognitive Science
       Gianluca Massera, Tomassino Ferrauto, Onofrio Gigliotta and Stefano
       Nolfi

10:55  An Energy-Based Model for Spatial Social Networks
       Alberto Antonioni, Mattia Egloff and Marco Tomassini

11:20  Evolution of Social Representation in Neural Networks
       Solvi F. Arnold, Reiji Suzuki and Takaya Arita

11:45  Robustness and Directed Structures in Ecological Flow Networks
       Taichi Haruna

12:10  Detecting regime shifts in artificial ecosystems
       Vasthi Alonso Chavez, James G. Dyke and C. Patrick Doncaster

12:35  Evolution of Altruism and Spatial Dispersion: an Artificial Evolutionary
       Ecology Approach
       Jean-Marc Montanier and Nicolas Bredeche
Music, Origins and Evolution of Language – September 5, session 10:30- 10:55 – room: C
Chair: TBA

10:30  The perception of potential: interference, dimensionality and knowledge
Jonathan Impett and Leonardo Impett

Chair: TBA

10:55  Sequence selection and evolution in a binary polymer model
Steen Rasmussen, Harold Fellermann and Shinpei Tanaka

11:20  On the preservation of limit cycles in Boolean networks under different updating schemes
Gonzalo Ruz, Marco Montalva and Eric Goles

11:45  Using Reproductive Altruism to Evolve Multicellularity in Digital Organisms
Jack Hessel and Sherri Goings

Mathematical Models for the Living Systems and Life – September 5, session 12:10-13:00 – room: C
Chair: TBA

12:10  An Environmental Model of Self-Compatibility Transitions in the Solanaceae Plant Family
Paul Calcraft, Phil Husbands and Andrew Philippides

12:35  Population Dynamics of Centipede Game using an Energy Based Evolutionary Algorithm
Pedro Mariano and Luis Correia

General track  ECAL 2013 #10 – September 5, session 10:30-13:00 – room: D
Chair: TBA

10:30  The coevolution of costly heterogeneities and cooperation in the prisoner’s dilemma game
Markus Brede and Jason Noble

10:55  Using MapReduce Streaming for Distributed Life Simulation on the Cloud
Atanas Radenski

11:20  When congestion can be useful: modelling driver diversion behaviour in road traffic networks
James Snowdon and Ben Waterson
11:45  
*Replication strategies and the evolution of cooperation by exploitation*
Markus Brede and Simon Tudge

12:10  
*Coevolutionary Cartesian Genetic Programming in FPGA*
Radek Hrbacek and Michaela Sikulova

12:35  
*Multi-Objective Optimization of Intrusion Detection Systems for Wireless Sensor Networks*
Martin Stehlík, Adam Saleh, Andriy Stetsko and Vashek Matyas
General track  ECAL 2013 #11 – September 5, session 16:00- 18:30 – room: A
Chair: TBA

16:00  Exploring the Point-mutation Space of a von Neumann Self-reproducer within the Avida World
       Tomonori Hasegawa and Barry McMullin

16:25  Autopoiesis Facilitates Self-Reproduction
       Jean Sirmai

16:50  Learning Schooling Behavior from Observation
       Brian Hrolenok and Tucker Balch

17:15  Biology of Digital Organisms: How Language and tools Constructs Reality
       Orly Stettiner

17:40  SimianWorld - A Study of Social Organisation Using an Artificial Life Model
       Sue Attwood, Lola Canamero and Rene Te Boekhorst

18:05  The Influence of Cell Type on Artificial Development
       John Maher

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General track  ECAL 2013 #12 – September 5, session 16:00- 18:30 – room: B
Chair: TBA

16:00  Behavior as broken symmetry in embodied self-organizing robots
       Ralf Der and Georg Martius

16:25  Environmental Feedback Drives Multiple Behaviors from the Same Neural Circuit
       Paul Williams and Randall Beer

16:50  Hidden information transfer in an autonomous swinging robot
       James Thorniley and Phil Husbands

17:15  Stackelberg-based Coverage Approach in Nonconvex Environments
       Bijan Ranjbar-Sahraei, Katerina Stankova, Karl Tuyls and Gerhard Weiss

17:40  Molecular robotics approach for constructing an artificial cell model
       Shin-Ichiro M. Nomura, Yusuke Sato and Kei Fujiwara

18:05  Human-Robot Analogy – How Physiology Shapes Human and Robot Motion
       Veljko Potkonjak, Vladimir M. Petrović, Kosta Jovanović and Dragan Kostić
Bioinspired Robotics III – September 5, session 16:00-16:25 – room: C
Chair: TBA

16:00  Multi-create Self-folding by Uniform Heating
Shuhei Miyashita and Daniela Rus

Programmable Nanomaterials – September 5, session 16:25-17:15 – room: C
Chair: TBA

16:25  Programming the Assembly of Inorganic Nanomaterials Using Networked Chemical Reactions
Leroy Cronin

16:50  Catalytic Molecular Walkers: Aspects of Product Release
Darko Stefanovic, Milan Stojanovic, Mark Olah and Oleg Semenov

Adaptive & Evolvable Hardware – September 5, session 17:15- 18:30 – room: C
Chair: TBA

17:15  Linking Evolution in Silico, Hardware, and Chemistry to discover or engineer Inorganic Biology
Leroy Cronin

17:40  Acoustic sensor arrays for understanding bird communication. Identifying Cassin’s Vireos using SVMs and HMMs
Julio G. Arriaga, George Kossan, Martin L. Cody, Edgar E. Vallejo and Charles E. Taylor

18:05  Evolution of an artificial visual cortex for image recognition
Samuel Chapman, David Knoester, Arend Hintze and Christoph Adami

General track  ECAL 2013 #13 – September 5, session 16:00- 18:30 – room: D
Chair: TBA

16:00  Beyond the Schelling’s Segregation Model Attractiveness Vs. Repulsiveness is it Equivalent to be Repulsed by Dissimilar Rather to be Attracted by Similar?
Philippe Collard

16:25  Open-Ended Evolution of a Circadian Rhythm
Tiago Baptista and Ernesto Costa

16:50  Follow the Leader: a Scalable Approach for Realistic Group Behavior of Roaming NPCs in MMO Games
Dario Maggiorini, Laura Anna Ripamonti and Samuele Panzeri
17:15  The Origin of Money: An Agent-Based Model
       Timothy Moran, Markus Brede, Antonella Ianni and Jason Noble

17:40  Neural agents can evolve to reproduce sequences of arbitrary length
       Benjamin Inden and Jürgen Jost

18:05  Evolving Behaviour-Dependent Strategies in Agent Negotiations
       Darius Falahat, Enrico Gerding and Markus Brede
**General track  ECAL 2013 #14 – September 6, session 10:30-12:10 – room: A**

Chair: TBA

10:30  *Bootstrapping back the climate with self-organization*  
Vítor V. Vasconcelos, Flavio L. Pinheiro, Francisco C. Santos and Jorge M. Pacheco

10:55  *Self-Organisation of Generic Policies in Reinforcement Learning*  
Simón C. Smith and J. Michael Herrmann

11:20  *Quantifying Political Self-Organization in Social Media. Fractal patterns in the Spanish 15M movement on Twitter*  
Miguel Aguilera, Ignacio Morer, Xabier E. Barandiaran and Manuel G. Bedía

11:45  *Machine Consciousness and Creativity: Some Preliminary Considerations*  
Antonio Chella

**Late Breaking Papers/Abstracts/Posters/Demos – September 6, session 10:30- 12:10 – room: B**

Chair: TBA

10:30  *How Fast Can We Evolve Something?*  
Inman Harvey

10:55  *An Emergent Model for Mimicking Human Neuronal Pathways in Silico*  
Önder Gürcan

11:20  *The emergence of life and evolution: Towards a categorial approach*  
Roland Cazalis

11:45  *Using novel bio-inspired principles to improve adaptability of evolutionary robots in dynamically changing environments*  
Yao Yao, Kathleen Marchal and Yves Van de Peer

**General track  ECAL 2013 #15 – September 6, session 10:30- 12:10 – room: C**

Chair: TBA

10:30  *Some Remarks on Dynamics of Binary Chromosomes Population*  
Zbigniew Pliszka and Olgierd Unold

10:55  *Balancing the Costs and Benefits of Learning Ability*  
Kai Olav Ellefsen

11:20  *Evolved Sensitive Periods in Learning*  
Kai Olav Ellefsen

11:45  *Multiple Time Scales Observed in Spontaneously Evolved Neurons on High-density CMOS Electrode Array*  
Eiko Matsuda, Takeshi Mita, Julien Hubert, Mizuki Oka, Douglas Bakkum, Urs Frey, Hirokazu Takahashi and Takashi Ikegami
POSTERS – Presentation: 16:00-17:00 – Poster Inauguration: 19:00

1) Evolution of Spatial Pattern Formation by Autonomous Bio-Inspired Cellular Controllers
Payam Zahadat, Thomas Schmickl and Karl Crailsheim

2) An alternative route to robustness: The relationship between assortativity, in- components, and characteristic path length in gene regulatory networks
Dov Pechenick, Joshua Payne and Jason Moore

3) The influence of assortativity on the robustness and evolvability of gene regulatory networks upon gene birth
Dov Pechenick, Jason Moore and Joshua Payne

4) Evaluation of an Experimental Framework for Exploiting Vision in Swarm Robotics
Sjriek Alers, Bijan Ranjbar-Sahraei, Stefan May, Karl Tuyls and Gerhard Weiss

5) A practical approach to Humanoid Introspection
Filippo Vella, Ignazio Infantino, Giovanni Pilato and Riccardo Rizzo

6) The Triangle of Life
A.E. Eiben, Nicolas Bredeche, Mark Hoogendoorn, Juergen Stradner, Jon Timmis, Andy Tyrrell and Alan Winfield

7) Cooperation and the Division of Labour
Simon Tudge, Richard Watson and Markus Brede

8) Experimental studied on growing chemical organisms
Jerzy Maselko, James Pantaleone and Vitaliy Kaminker

9) Expanding the Time Horizon in Underwater Robot Swarms
Vincenzo Fioriti, Stefano Chiesa and Fabio Fratichini

10) Multiplicity of Interpretation in an Asynchronous Updating Rule: Emergence of Collective Cognition
Takayuki Niizato

11) Analyzing Program Evolution in Genetic Programming using Asynchronous Evaluation
Tomohiro Harada and Keiki Takadama

12) Multiple Life-History Stage Competition and its Effect on Coexistence
Miguel Gonzalez, Richard Watson, Jason Noble and Patrick Doncaster

13) Predator prey molecular landscapes
Adrien Padirac, Alexandre Baccouche, Teruo Fujii, Andre Estevez-Torres and Yannick Rondelez

14) Simulating Limited Diversity in Evolution of Influenza
Takahiro Sasaki

15) The only wrong cell is the dead one: On the enactive approach to normativity
Manuel Heras-Escribano, Jason Noble and Manuel De Pinedo

16) Task Allocation Strategy for Time-Constrained Tasks in Robots Swarms
Yara Khaluf and Franz Rammig

17) Influence of a Social Gradient on a Swarm of Agents Controlled by the BEECLUST Algorithm
Daniela Kengyel, Ronald Thenius, Karl Crailsheim and Thomas Schmickl

18) Construction of a remote-controlled supramolecular micro-crawler
Daiki Komatsu, Kei Fujiwara and Shin-Ichiro M. Nomura

19) Formal Model of Living Systems
Margareta Segerståhl

20) Emergence of Autonomous Behaviors of Virtual Characters through Simulated Reproduction
Yuri Lenon Barbosa Nogueira, Carlos Eduardo Fisch de Brito, Creto Augusto Vidal and Joaquim Bento Cavalcante Neto
21) In vitro Synthesis of Membrane Protein Machinery toward the Construction of Artificial Cell  
  Hideaki Matsubayashi, Yutetsu Kuruma and Takuya Ueda
22) Controlling Task Distribution in MONEE  
  Evert Haasdijk and Nicolas Bredeche
23) Robust Optimization of Adjustable Control Factors Using Particle Swarm Optimization  
  Takeo Kato, Koichiro Sato and Yoshiyuki Matsuoka
24) Collective Dynamics and Homeostatic Emergence in Complex Adaptive Ecosystem  
  Dharani Punithan and Bob Mckay
  Arash Khabbaz Saberi, Jan Friso Groote and Sarmen Keshishzadeh
26) Bladder cancer specific pathway interaction networks  
  Qinxin Pan, Ting Hu, Angeline Andrew, Margaret Karagas and Jason Moore
27) Lévy-like Distribution Shown by Intermittent Search Model with Misunderstanding Switch Pattern  
  Hisashi Murakami and Yukio Gunji
28) A cardiopulmonary system for a virtual patient  
  Vincent Ducharme, Richard Egli and Sylvie Jetté
29) Artificial Causal Space-Time  
  Yukio Gunji, Tomoko Sakiyama, Sohei Wakisaka, Naotaka Fujii and Tomoaki Nakamura
30) Rapid Rule Compaction Strategies for Global Knowledge Discovery in a Supervised Learning Classifier System  
  Jie Tan, Jason Moore and Ryan Urbanowicz
31) Comparing Reinforcement Learning and Evolutionary Based Adaptation in Population Games  
  Ana L. C. Bazzan
32) Cooperation of two different swarms controlled by BEECLUST algorithm  
  Tobias Meister, Ronald Thenius, Daniela Kengyel and Thomas Schmickl
33) The relationship between Flocking Behavior and the Emergence of Leadership  
  Francesco Pugliese and Davide Marocco
34) Family Bird: A Heterogeneous Simulated Flock  
  Jure Demšar and Iztok Lebar Bajec
35) Evolution of Mutual Trust Protocol in Human-based Multi-Agent Simulation  
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