# BICT 2015 Conference Program

## 12/3 (Thu)

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:30-8:00</td>
<td>Davis Atrium</td>
<td>Registration (Davis Atrium)</td>
</tr>
<tr>
<td>8:00-8:20</td>
<td>Davis Auditorium</td>
<td>Opening: Jun Suzuki, Tadashi Nakano, Henry Hess, and Imrich Chlamtac</td>
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<tr>
<td>8:20-9:20</td>
<td>Fairchild</td>
<td><strong>Keynote:</strong> Yechiam Yemini</td>
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<tr>
<td>8:20-9:35</td>
<td>Mudd</td>
<td>Coffee break</td>
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<tr>
<td>9:20-9:35</td>
<td>Eng Terrace</td>
<td>PhysNet</td>
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<tr>
<td>9:35-12:30</td>
<td>CEPSR414</td>
<td>ARPI, BWNS, BMDPA</td>
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<tr>
<td>12:30-2:00</td>
<td>Costa Commons</td>
<td>Lunch</td>
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<td>2:00-3:00</td>
<td>Costa Commons</td>
<td><strong>Keynote:</strong> Adriana Compagnoni</td>
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<td>3:00-4:00</td>
<td>Costa Commons</td>
<td><strong>Keynote:</strong> Dmitri Chklovskii</td>
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<td>4:00-4:15</td>
<td>Costa Commons</td>
<td>Coffee break</td>
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<tr>
<td>4:15-6:00</td>
<td>Costa Commons</td>
<td>BIICT, EmNet-I</td>
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<tr>
<td>6:15-8:30</td>
<td>Costa Commons</td>
<td>Movie screening</td>
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## 12/4 (Fri)

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<th>Time</th>
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<th>Event</th>
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<tbody>
<tr>
<td>8:00-9:00</td>
<td>Costa Commons</td>
<td><strong>Keynote:</strong> Bud Mishra</td>
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<tr>
<td>9:00-10:00</td>
<td>Costa Commons</td>
<td><strong>Keynote:</strong> Maurizio Porfiri</td>
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<tr>
<td>10:00-10:15</td>
<td>Costa Commons</td>
<td>Coffee break</td>
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<td>10:15-12:30</td>
<td>Costa Commons</td>
<td>CMVC</td>
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<tr>
<td>12:30-2:00</td>
<td>Costa Commons</td>
<td>Lunch</td>
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<tr>
<td>2:00-3:00</td>
<td>Costa Commons</td>
<td><strong>Keynote:</strong> Toshiyuki Nakagaki</td>
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<tr>
<td>3:00-4:00</td>
<td>Costa Commons</td>
<td><strong>Keynote:</strong> Emanuela Merelli</td>
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<td>4:00-4:15</td>
<td>Costa Commons</td>
<td>Coffee break</td>
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<td>4:15-6:00</td>
<td>Costa Commons</td>
<td>TOPDRIM4Bio, Posters AISE, EmNet-II</td>
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<tr>
<td>8:00-11:00</td>
<td>Costa Commons</td>
<td>Conference Dinner</td>
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## 12/5 (Sat)

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<th>Time</th>
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<th>Event</th>
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<tr>
<td>8:00-9:00</td>
<td>Costa Commons</td>
<td><strong>Keynote:</strong> Simon Garnier</td>
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<tr>
<td>9:00-9:15</td>
<td>Costa Commons</td>
<td>Coffee break</td>
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<tr>
<td>9:15-12:30</td>
<td>Costa Commons</td>
<td>PhysNet</td>
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<tr>
<td>12:30-2:00</td>
<td>Costa Commons</td>
<td>GTA, CAS, Bioinformatics</td>
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<td>2:00-3:00</td>
<td>Costa Commons</td>
<td><strong>Keynote:</strong> Kazuhiro Oiwa</td>
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<td>3:00-3:15</td>
<td>Costa Commons</td>
<td>Coffee break</td>
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<tr>
<td>3:15-4:45</td>
<td>Costa Commons</td>
<td>BICC</td>
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<tr>
<td>4:45-7:30</td>
<td>Costa Commons</td>
<td>BCBI-II, ABBII</td>
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Conference Tracks:

- Artificial, Biological and Bio-Inspired Intelligence (ABBII)
- Artificial Intelligence and Software Engineering (AISE)
- Anthropomorphic Robot and Physiological Information for Cares and Daily Communication (ARPI)
- Biological Computing and Bio-medical Informatics (BCBI)
- Bio-Inspired Communications and Computing (BICC)
- BioNanoNetworks: Modeling, Design, Performance and Applications (BMDPA)
- Bio-inspired Self-propelling Systems (BSS)
- Bio-inspired Wireless Network Security (BWNS)
- Complex Adaptive Systems (CAS)
- Combinatorial Optimization (COP)
- Engineering Applications from Bio-Molecular Networks (EmNet)
- Game Theory and its Applications (GTA)
- Molecular Communication and Networking (MCN)
- Modularization for Practical Software Engineering (MPSE)
- Swarm Robotics (SR)
- Topology-driven bio-inspired methods and models for complex systems (TOPDRIM4Bio)

Workshops:

- The Second International Workshop on Brain-Inspired Information Communication Technologies (BIICT)
- International Workshop on Bioinformatics
- The First International Workshop on Computational Models of the Visual Cortex: Hierarchies, Layers, Sparsity, Saliency and Attention (CMVC)
- The First International Workshop on Physarum Transport Networks (PhysNet)

Rooms:

- Davis Auditorium (Main room): Room 412 (4th floor), Schapiro Center for Engineering and Physical Science Research (CEPSR) Building. Capacity: 200.
- Davis Atrium: Across Davis Auditorium.
- CEPSR 414: Room 414 (4th floor), Schapiro Center for Engineering and Physical Science Research (CEPSR) Building. Capacity: 60.
- Costa Commons: Room 750 (7th floor), Schapiro Center for Engineering and Physical Science Research (CEPSR) Building. Capacity: 70.
- Mudd 343 (3rd floor), Mudd Building. Capacity: 30.

Address of CEPSR:

530 West 120th Street, New York, NY

Nearest subway station is the 116th Street (Columbia University) station on #1 subway line. The distance from the station to CEPSR is 0.3 mile (500 meters); 6 to 7 minutes by walk.

Location of Buildings:

See http://bionetics.org/2015/show/venue for more details.
Conference Registration:
The registration desk will be placed at Davis Atrium. It will open at 7:30am each day and remain open throughout the day. In addition, it will be open from 3pm to 5pm on December 2 (Wed).

Breakfast and Refreshments:
Continental breakfast will be served at Davis Atrium each day. Coffee breaks will also take place at Davis Atrium with refreshments.

Lunch:
The conference will not provide lunch. Conference participants are expected to have lunch by themselves. See the conference web site for a list of nearby restaurants.

Movie Night:
The documentary movie “The Creeping Garden” (http://www.creepinggarden.com) will be screened at the Davis Auditorium from 6:15pm to 8:30pm on Day 1. The chair of PhysNet 2015, Hans-Günther Döbereiner, will give short opening remarks, followed by the screening (80 minutes). A QA session will take place afterwards. Heather Barnett (artist and educator, featured in the movie) and Toshiyuki Nakagaki (a keynote speaker of BICT 2015) will be there. The documentary has its debut in North America to critical acclaim. For reviews, see http://www.creepinggarden.com/press.

The accompanying book, The Creeping Garden: Irrational Encounters with Plasmodial Slime Moulds by Jasper Sharp (Author) and Tim Grabham (Photographer), as well as T Shirts will be on sale during Movie Night. Cash only.

A conference registration includes a movie ticket. A workshop registration does not. Tickets are available to be purchased at the conference web site. On-site ticket purchase will not be available.

For those who participate in this screening, light food (small “tea” sandwiches) will be served at Davis Atrium from 5:45pm to 6:15pm.

Conference Dinner:
The conference dinner will take place at Day 2 on a Manhattan cruise, which is operated by Marco Polo Cruises (http://www.marcopolocruises.com). The cruise will feature the Manhattan skyline, Brooklyn Bridge, Statue of Liberty, South Street Seaport and Intrepid on the East and Hudson Rivers.

Boarding will start at 7:30pm in the New York Skyports Marina (East 23rd and FDR Drive). Departure time is 8pm. The name of the boat is Jewel. Complimentary bus ride will be offered to the Skyports Marina. Four buses will leave around 6:15pm at 520 W 120th St., which is a few minutes away from the CEPSR building by walk.

The cruise dinner will be over in 2.5 to 3 hours. No bus ride will be offered for return trip. Nearby subway stations are 10-15 minutes away by walk.

A conference registration includes a movie ticket. A workshop registration does not. Tickets are available to be purchased at the conference web site. On-site ticket purchase will not be available.
DAY 1: December 3 (Thu)

9:35-12:30 Main Track I
Chair: Jun Suzuki (University of Massachusetts, Boston)

- Biologically-inspired adaptive routing protocol with stochastic route exploration (regular paper). Tomohiro Nakao (Osaka University), Jun-nosuke Teramae (Osaka University) and Naoki Wakamiya (Osaka University)

- A Self-Organizing Map Architecture for Arm Reaching Based on Limit Cycle Attractors (regular paper). Di-Wei Huang (University of Maryland, College Park), Rodolphe Gentili (University of Maryland, College Park), James Reggia (University of Maryland, College Park)

- Sensitivity based selection of inputs and delays for NARX models (regular paper). Martin Macas (Czech Technical University), Fabio Moretti (Italian National Agency for New Technologies)

- Body-in-the-Cloud: Towards Visualization-driven Optimization and Stabilization for Cloud-integrated Body Area Networks (regular paper). Yi Cheng Ren (University of Massachusetts, Boston), Junichi Suzuki (University of Massachusetts, Boston), Ryuichi Hosoya (OGIS International, Inc.)

- A Deep Learning Approach for Network Intrusion Detection System (regular paper). Ahmad Javaid (University of Toledo), Quamar Niyaz (University of Toledo), Weiqing Sun (University of Toledo), Mansoor Alam (University of Toledo)

- Gist+RatSLAM: An Incremental Bio-inspired Place Recognition Front-End for RatSLAM (regular paper). S. M. Ali Musa Kazmi (University of Paderborn), Barbel Mertsching (University of Paderborn)

- An Autonomous and Distributed Mobility Management Scheme in Mobile Core Networks (regular paper). Hua Yang (Osaka University), Naoki Wakamiya (Osaka University), Masayuki Murata (Osaka University), Takanori Iwai (NEC Corporation), Satoru Yamano (NEC Corporation)

- An Explanation of Computation - Collective Electrodynamics in Blobs of Carbon Nanotubes (short paper). Dragana Laketic (Norwegian University of Science and Technology), Gunnar Tufte (Norwegian University of Science and Technology), Odd Rune Lykkebo (Norwegian University of Science and Technology), Stefano Nichele (Norwegian University of Science and Technology)

- Bio-inspired Hardware Central Pattern Generator (hCPG) as a Therapy for Cardiorespiratory Disease (short paper). Ashok Chauhan (University of Bath), Le Zhao (University of Bath), Julian Paton (University of Bath), Alain Nogaret (University of Bath)

9:35-10:50 Anthropomorphic Robot and Physiological Information for Cares and Daily Communication (ARPI)
Chair: Noriaki Kuwahara (Kyoto Institute of Technology)

- Wearable robot that measures user vital signs for elderly care and support (short paper). Hirotake Yamazoe (Ritsumeikan University), Tomoko Yonezawa (Kansai University)

- Analysis of Gait Changes Caused by Simulated Left Knee Disorder (short paper). Takuya Ogawa (Osaka University), Hirotake Yamazoe (Ritsumeikan University), Ikuhisa Mitsugami (Osaka University), Yasushi Yagi (Osaka University)

- Assessing the Use of Communication Robots for Recreational Activities at Nursing Homes (short paper). Noriaki Kuwahara (Kyoto Institute of Technology)

- Breathing Expression for Intimate Communication Corresponding to the Physical Distance and Contact between Human and Robot (short paper). Naoto Yoshida (Kansai University), Yukari Nakatani (Kansai University), Tomoko Yonezawa (Kansai University)
• Design of Pet Robots with Limitations of Lives and Inherited Characteristics (short paper). Tomoko Yonezawa (Kansai University), Naoto Yoshida (Kansai University), Kento Kuboshima (Kansai University)

10:50-11:45 Bio-inspired Wireless Network Security (BWNS)
Chair: Parisa Memarmoshrefi (University of Goettingen)

• Identity Deception and Game Deterrence via Signaling Games (regular paper). William Casey (Carnegie Mellon University), Parisa Memarmoshrefi (University of Goettingen), Ansgar Kellner (University of Goettingen), Jose Andre Morales (Carnegie Mellon University), Bud Mishra (New York University)

• Evaluation of Cryptography Usage in Android Applications (regular paper). Alexia Chatzikonstantinou (Mezza Group), Christoforos Ntantogian (University of Piraeus), Georgios Karopoulos (University of Piraeus), Christos Xenakis (University of Piraeus)

• Investigating the Learning Phase of an Autonomous Authentication in Mobile Ad-hoc Networks (short paper). Hang Zhang (University of Goettingen), Parisa Memarmoshrefi (University of Goettingen), Fatemeh Ashrafi (University of Goettingen), Dieter Hogrefe (University of Goettingen)

11:45-12:50 BioNanoNetworks: Modeling, Design, Performance and Applications (BMDPA)
Chair: Mohammad Upal Mahfuz (University of Wisconsin-Green Bay)

• Capacity of Multilayer Diffusion-based Molecular Communication (DBMC) Channel (regular paper). Saizalmursidi Md Mustam (Universiti Tun Hussein Onn Malaysia, Universiti Teknologi Malaysia), Sharifah Kamilah Syed Yusof (Universiti Teknologi Malaysia), Suleiman Zubair (Universiti Teknologi Malaysia)

• Characterization of Human Skin Using THz Time Domain Spectroscopy for In-body Nanonetworks (short paper). Nishtha Chopra (Queen Mary University of London), Ke Yang (Queen Mary University of London), Qammer Abbasi (Texas A&M University), Khalid Qaraqe (Texas A&M University), Mike Philpott (Queen Mary University of London), Akram Alomainy (Queen Mary University of London)

• Receiver Design Considerations in Concentration-Encoded Molecular Communication Based on Sampling Rate Selection (short paper). Mohammad Upal Mahfuz (University of Wisconsin-Green Bay)

• Strength-based Signal Detection in PAM OOK Concentration-Encoded Molecular Communication (short paper). Mohammad Upal Mahfuz (University of Wisconsin-Green Bay)

4:15-5:05 Main Track II
Chair: Douglas Dow (Wentworth Institute of Technology)

• Abundance of connected motifs in transcriptional networks, a case study using random forests regression (regular paper). Syed Khajamoinuddin (Virginia Commonwealth University), Bhanu Kamapantula (Virginia Commonwealth University), Michael Mayo (US Army Engineer Research and Development Center), Edward Perkins (US Army Engineer Research and Development Center), Preetam Ghosh Khajamoinuddin (Virginia Commonwealth University)

• Activity Monitoring System for Independent Elderly Living (short paper). Timothy J. Walters (Wentworth Institute of Technology), Rosemary Espinal (Wentworth Institute of Technology), Vanessa Restrepo (Wentworth Institute of Technology), Joseph F. Santacroce (Wentworth Institute of Technology), Douglas Dow (Wentworth Institute of Technology)

• Automatic Regulator for Supplemental Oxygen Therapy (short paper). Vian Abraham (Wentworth Institute of Technology), Yasameen Al Mharib (Wentworth Institute of Technology), Brian Donnel (Wentworth Institute of Technology), Xiaobin Le (Wentworth Institute of Technology), Joseph Santacroce (Wentworth Institute of Technology), Douglas Dow (Wentworth Institute of Technology)
5:05-6:00 Combinatorial Optimization (COP)
Chair: Vincent Cicirello (Stockton University)

- Adaptive Wind Driven Optimization (short paper). Zikri Bayraktar (Schlumberger-Doll Research Center), Muge Komurcu (University of New Hampshire)
- A Population Based ACO Algorithm for the Combined Tours TSP Problem (regular paper). Martin Clauss (Fraunhofer FKIE), Lydia Lotzmann (University of Leipzig), Martin Middendorf (University of Leipzig)
- Genetic Algorithm Parameter Control: Application to Scheduling with Sequence-Dependent Setups (regular paper). Vincent Cicirello (Stockton University)

5:30-6:00 Engineering Applications from Bio-Molecular Networks (EmNet) I
Chair: Michael Mayo (US Army Engineer Research and Development Center)

- An Algorithm for stable Microtubule Curvature Conformation (short paper). Ramana Pidaparti (University of Georgia), Somenath Das (University of Georgia), Preetam Ghosh (Virginia Commonwealth University)
- Multiscale Modeling of Information Conveyed by Gene-Regulatory Signaling (short paper). Michael Mayo (US Army Engineer Research and Development Center), Kevin Pilkiewicz (US Army Engineer Research and Development Center)

DAY 2: December 4 (Fri)

10:15-12:05 Molecular Communication and Networking (MCN)
Chair: Tadashi Nakano (Osaka University)

- Offset and Skew Estimation for Clock Synchronization in Molecular Communication Systems (regular paper). Lin Lin (Shanghai University), Chengfeng Yang (Shanghai University), Maode Ma (Nanyang Technological University)
- A Vertical Channel Model of Molecular Communication based on Alcohol Molecules (regular paper). Pengfei Lu (Shaanxi Normal University), Yang You (Shaanxi Normal University), Bo Liu (Shaanxi Normal University), ZhenQiang Wu (Shaanxi Normal University)
- Impacts of SW-ARQ on the Latency and Reliability of Molecular Communication in Noisy Aqueous Medium (regular paper). Jonathan Mitzman (University of Massachusetts, Boston), Bria Morgan (University of Massachusetts, Boston), Torna Omar (University of Massachusetts, Boston and Bunker Hill Community College), Junichi Suzuki (University of Massachusetts, Boston), Tadashi Nakano (Osaka University)
- A Pluggable and Flexible Simulation Framework for Molecular Communication (regular paper). Jonathan Mitzman (University of Massachusetts, Boston), Bria Morgan (University of Massachusetts, Boston), Torna Omar (University of Massachusetts, Boston and Bunker Hill Community College), Junichi Suzuki (University of Massachusetts, Boston), Tadashi Nakano (Osaka University)
- Mobility and Controllability of Bio-nanomachines (short paper). Yutaka Okaie (Osaka University), Tadashi Nakano (Osaka University), Takuya Obuchi (Osaka University), Takahiro Hara (Osaka University), Shojiro Nishio (Osaka University)
- Packet Replication and Noise in Reliable End-to-end Molecular Communication (short paper). Taro Furubayashi (Osaka University), Tadashi Nakano (Osaka University), Andrew Eckford (York University), Norikazu Ichihashi (Osaka University), Tetsuya Yomo (Osaka University)

12:05-12:40 Biological Computing and Bio-medical Informatics (BCBI) I
Chair: Andrew Schumann (University of Information Technology and Management)
• Eye-tracking Data, Complex Networks and Rough Sets: an Attempt Toward Combining Them (regular paper). Krzysztof Pancerz (University of Rzeszow and University of Information Technology and Management in Rzeszow), Boleslaw Jaskula (University of Information Technology and Management in Rzeszow), Jaroslaw Szkola (University of Information Technology and Management in Rzeszow), Aneta Derkacz (University of Management and Administration in Zamosc)

• Children Lung Function Diagnostics - New Methods For Handling of Clinical Data (short paper). Jaroslav Horacek (Charles University in Prague), Vaclav Koucky (Charles University in Prague), Milan Hladik (Charles University in Prague)

4:15-6:00 Topology-driven bio-inspired methods and models for complex systems (TOPDRIM4Bio)
Chair: Emanuela Merelli (University of Camerino)

• Multiscale Topology of Chromatin Folding (short paper). Kevin Emmett (Columbia University), Benjamin Schweinhart (Harvard University), Raul Rabadan (Columbia University)

• Evidence of higher order patterns in information transmission between nucleotide sequences and folded molecular shapes of RNA (short paper). Christopher Barrett (Virginia Bioinformatics Institute), Fenix Huang (Virginia Bioinformatics Institute), Christian Reidys (Virginia Bioinformatics Institute)

• Towards a Shape Language for Interpreting RNA Folding (short paper). Adane Letta Mamuye (University of Camerino), Emanuela Merelli (University of Camerino), Luca Tesei (University of Camerino)

• Persistent Homology on RNA Secondary Structure Space (short paper). Matteo Rucco (University of Camerino), Adane Mamuye (University of Camerino)

• Quantifying Reticulation in Phylogenetic Complexes Using Homology (short paper). Kevin Emmett (Columbia University), Raul Rabadan (Columbia University)

• Designing Behaviour in Bio-inspired Robots Using Associative Topologies of Spiking-Neural-Networks (short paper). Cristian Jimenez Romero (The Open University), David Sousa-Rodrigues (The Open University), Jeffrey Johnson (The Open University)

• A topological approach for multivariate time series characterization: the epileptic brain (short paper). Emanuela Merelli (University of Camerino), Marco Piangerelli (University of Camerino), Matteo Rucco (University of Camerino), Daniele Toller (University of Camerino)

4:15-5:25 Artificial Intelligence and Software Engineering (AISE)
Chair: Richard Torkar (Chalmers and the University of Gothenburg)

• Testing Software Using Swarm Intelligence: A Bee Colony Optimization Approach (regular paper). Omar El Ariss (The Pennsylvania State University), Steve Bou ghosn (Westfield State University), Weifeng Xu (Bowie State University)

• Ant Colony Optimization Based Model Checking Extended by Smell-like Pheromone (regular paper). Tsutomu Kumazawa (Software Research Associates, Inc.), Chihiro Yokoyama (Tokyo University of Science), Munehiro Takimoto (Tokyo University of Science), Yasushi Kambayashi (Nippon Institute of Technology)

• A Genetic Algorithm for Automated Refactoring of Component-Based Software (regular paper). Salim Kebir (Ecole Nationale Superieure d'informatique), Isabelle Borne (IRISA), Djamel Meslati (LISCO, Universite Badji Mokhtar)

• Facilitating Requirements Inspection with Search-Based Selection of Diverse Use Case Scenarios (regular paper). Huihui Zhang (Beihang University), Tao Yue (Simula Research Laboratory and University of Oslo), Shaukat Ali (Simula Research Laboratory), Chao Liu (Beihang University)

5:25-5:55 Engineering Applications from Bio-Molecular Networks (EmNet) II
Chair: Michael Mayo (US Army Engineer Research and Development Center)

- Capacity estimates of additive inverse Gaussian molecular channels with relay characteristics (short paper). Pratip Rana (Virginia Commonwealth University), Preetam Ghosh (Virginia Commonwealth University), Kevin Pilkiecz (US Army Engineer Research and Development Center), Edward Perkins (US Army Engineer Research and Development Center), Michael Mayo (US Army Engineer Research and Development Center), Chris Warner (US Army Engineer Research and Development Center)

- Optimal topology of gene-regulatory networks: role of the average shortest path (short paper). Ahmed F Abdelzaher (Virginia Commonwealth University), Thang Dinh (Virginia Commonwealth University), Michael Mayo (US Army Engineer Research and Development Center), Preetam Ghosh (Virginia Commonwealth University)

4:15-6:00 Poster Presentations

- Recognition for Switching of Feedback and Feedforward Process in Motor internal model. Isao Hayashi (Kansai University), Masaki Ogino (Kansai University), Sayaka Kita (Ushio Consultants Co.), Jasmin Leveille (Boston University)

- An Open Agent-Based Model to Simulate the Effect of WOM Marketing Campaigns. Paul Leger (Universidad Católica del Norte), Manuela López (Universidad Católica del Norte), Carmen Hidalgo-Alcázar (Universidad Católica del Norte), Hiroaki Fukuda Shibaura Institute of Technology

- An Explanation of Computation - Collective Electrodynamics in Blobs of Carbon Nanotubes. Dragana Laketic (Norwegian University of Science and Technology), Gunnar Tufte (Norwegian University of Science and Technology), Odd Rune Lykkebo (Norwegian University of Science and Technology), Stefano Nichele (Norwegian University of Science and Technology)

- Bio-inspired Hardware Central Pattern Generator (hCPG) as a Therapy for Cardiorespiratory Disease. Ashok Chauhan (University of Bath), Le Zhao (University of Bath), Julian Paton (University of Bath), Alain Nogaret (University of Bath)

- P. polycephalum can compute shortest paths. Luca Becchetti Sapienza (Università di Roma), Vincenzo Bonifaci (Istituto di Analisi dei Sistemi ed Informatica), Michael Dirnberger (Max Planck Institute for Informatics), Andreas Karrenbauer (Max Planck Institute for Informatics), Kurt Mehlhorn (Max Planck Institute for Informatics), Girish Varma (Tata Institute of Fundamental Research)

- Towards an online repository of P. polycephalum networks and their corresponding graph representations. Michael Dirnberger (Max Planck Institute for Informatics), Tim Kehl (Max Planck Institute for Informatics), Tim Mehlhorn (Korea Institute of Technology Europe), Kurt Mehlhorn (Max Planck Institute for Informatics), Adrian Neumann (Max Planck Institute for Informatics)

- Distributed Call Admission Control for DESYNC-TDMA in Mobile Ad Hoc Networks. Bongsoo Roh (Agency for Defense Development), Myoung-hun Han (Agency for Defense Development), Mijeong Hoh (Agency for Defense Development), Hwi-Sung Park (Agency for Defense Development), Kwangsoo Kim (Ajou University), Byeong-hee Roh (Ajou University)

- Routing Metric based on Slot Length of AODV on Multihop DESYNC-TDMA. Kwangsoo Kim (Ajou University), Cheol-Woong Lee (Ajou University), Byeong-hee Roh (Ajou University), Bongsoo Roh (Agency for Defense Development), Myoung-hun Han (Agency for Defense Development)

- Designing Behaviour in Bio-inspired Robots Using Associative Topologies of Spiking-Neural-Networks. Cristian Jimenez Romero (The Open University), David Sousa-Rodrigues (The Open University), Jeffrey Johnson (The Open University)

- Tough Behavior in the Repeated Bargaining Game. A Computer Simulation Study. Linh Chi Nguyen (University of Trento), Luciano Andreozzi (University of Trento)
• Adaptive Wind Driven Optimization. Zikri Bayraktar (Schlumberger-Doll Research Center), Muge Komurcu (University of New Hampshire)

• A Vertical Channel Model of Molecular Communication based on Alcohol Molecules. Pengfei Lu (Shaanxi Normal University), Yang You (Shaanxi Normal University), Bo Liu (Shaanxi Normal University), ZhenQiang Wu (Shaanxi Normal University)

• Bio-inspired Computation Approach for Tumor Growth with Spatial Randomness Analysis of Kidney Cancer Xenograft Pathology Slides. Aydin Saribudak (The City College of New York), Yiyu Dong (Memorial Sloan Kettering Cancer Center), James Hsieh (Memorial Sloan Kettering Cancer Center), M. Umit Uyar (The City College of New York)

• Coordinations of intracellular flow, calcium signal and cellular contraction in migrating physarum. Shun Zhang, (University of California San Diego), Robert Guy (University of California Davis), Juan Carlos del Alamo (University of California San Diego)

• Collective Homeostasis and Time-resolved Models of Self-organised Task Allocation. Bernd Meyer (Monash University), Anja Weidenmüller (University of Konstanz), Rui Chen (Monash University), Julian Garcia (Monash University)

DAY 3: December 5 (Sat)

9:15-12:30 Swarm Robotics (SR)
Chair: Andrew Vardy (Memorial University of Newfoundland)

• Fast Redistribution of a Swarm of Heterogeneous Robots (regular paper). Amanda Prorok (University of Pennsylvania), M. Ani Hsieh (Drexel University), Vijay Kumar (University of Pennsylvania)

• Ant Intelligent Robot: A Versatile and Low Cost Miniature Mobile Robot Platform for Swarm Robotics Research and Education (regular paper). Dan Marius (Novischi University Politehnica of Bucharest), Adina Magda (Florea University Politehnica of Bucharest)

• Collective Decision Making in a Swarm of Robots: How Robust the BEECLUST Algorithm Performs in Various Conditions (regular paper). Daniela Kengyel (Karl-Franzens University), Payam Zahadat (Karl-Franzens University), Thomas Kunzfeld (Karl-Franzens University), Thomas Schmickl (Karl-Franzens University).

• Revisiting BEECLUST: Aggregation of Swarm Robots with Adaptiveness to Different Light Settings (regular paper). Mostafa Wahby (University of Paderborn), Alexander Weinhold (University of Paderborn), Heiko Hamann (University of Paderborn)

• Evolving Mixed Societies: A one-dimensional modelling approach (regular paper). Michael Bodi (Karl-Franzens University), Martina Szopek (Karl-Franzens University), Payam Zahadat (Karl-Franzens University), Thomas Schmickl (Karl-Franzens University),

• A Tuple Space for Data Sharing in Robot Swarms (regular paper). Carlo Pincioli (Polytechnique Montreal), Adam Lee-Brown (Royal Melbourne Institute of Technology), Giovanni Beltrame (Polytechnique Montreal)

• Exploring Algorithmic Options for the Efficient Design and Reconfiguration of Reactive Robot Swarms (regular paper). Todd Wareham (Memorial University of Newfoundland)

• Group coordination in a biologically-inspired vectorial network model (regular paper). Maurizio Porfiri (New York University), Violet Mwaffo (New York University)

• BuPiGo: An Open and Extensible Platform for Visually-Guided Swarm Robots (short paper). Andrew Vardy (Memorial University of Newfoundland), Shiell Nicholi (Memorial University of Newfoundland)

9:15-10:00 Game Theory and its Applications (GTA)
Chair: Hung-Yu Wei (National Taiwan University)

• A Posted-Price Auction for Heterogeneous Spectrum Sharing under Budget Constraints (short paper). Wen-Hsiang Lai (National Central University, Taiwan), Pavol Polacek (National Central University, Taiwan), Chih-Wei Huang (National Central University, Taiwan),

• Tough Behavior in the Repeated Bargaining Game. A Computer Simulation Study (short paper). Linh Chi Nguyen (University of Trento), Luciano Andreozzi (University of Trento)

• Choose Early or Choose Wisely - A Chinese Restaurant Game Approach (short paper). Fang-Li Kung (Academia Sinica), Chih-Yu Wang (Academia Sinica)

10:00-12:40 Complex Adaptive Systems (CAS)
Chair: Takao Terano (Tokyo Institute of Technology)

• Reinforcement Learning with Internal Reward for Multi-Agent Cooperation: A Theoretical Approach (regular paper). Fumito Uwano (The University of Electro-Communications), Naoki Tatebe (The University of Electro-Communications), Masaya Nakata (The University of Electro-Communications), Keiki Takadama (The University of Electro-Communications), Tim Kovacs (University of Bristol)

• Optimization of Aircraft Landing Route and Order: An approach of Hierarchical Evolutionary Computation (regular paper). Akinori Murata (The University of Electro-Communications), Masaya Nakata (The University of Electro-Communications), Hiroiuku Sato (The University of Electro-Communications), Tim Kovacs (University of Bristol), Keiki Takadama (The University of Electro-Communications)

• Establishing Interaction between Machine and Medaka using Deep Q-Network (regular paper). Ryo Nishimura (Hokkaido University), Hiroyuki Iizuka (Hokkaido University), Masahito Yamamoto (Hokkaido University)

• Proposing Multimodal Integration Model Using LSTM and Autoencoder (regular paper). Wataru Noguchi (Hokkaido University), Hiroyuki Iizuka (Hokkaido University), Masahito Yamamoto (Hokkaido University)

• Effect of evacuee on contagion of evacuation (regular paper). Saori Iwanaga (Japan Coast Guard Academy), Akira Namatame (National Defense Academy)

• Adaptive Leader Selection based on Influential Individuals (short paper). Hiroshi Sato (National Defense Academy), Masao Kubo (National Defense Academy), Akira Namatame (National Defense Academy)

• Simulating Customer-to-Customer Interaction In a B2B Financial Service Business By Empirical Agent-Based Modeling (short). Makoto Mizuno (Meiji University), Keiko Toya (Meiji University), Kana Ozawa (Ryutsu Keizai University), Yutarro Nemoto (Tokyo Metropolitan University), Shintaro Tanno (AIST), Kohei Arai (Gunma University), Keisuke Oura (Shiga University), Akira Ishii (Shiga University), Takaaki Ohnishi (University of Tokyo)

3:15-4:45 Bio-inspired Self-propelling Systems (BSS)
Chair: Takahiro Nitta (Gifu university)

• Space Searching Algorithms Used by Fungi (invited paper). Elitsa Asenova (McGill University), Eileen Fu (McGill University), Dan V. Nicolau Jr. (Queensland University of Technology), Hsin-Yu Lin (McGill University), Dan V. Nicolau (McGill University)
• Intelligence of reconstructed biomolecular motor system (invited paper). Daisuke Inoue (Hokkaido University), Arif Md. Rashedul Kabir (Hokkaido University), Akira Kakugo (Hokkaido University)

• Dynamic Microfluidic Channels for Active Nanotransport Driven by Kinesin Motor Proteins (invited paper). Ryuji Yokokawa (Kyoto University)

• Microtubule Motional Diffusion Coefficient in Motility Assays is Determined by Heterogeneity in Motor Stiffness (short paper). Henri Palacci (Columbia University), Ofer Idan (Columbia University), Megan Armstrong (Columbia University), Takahiro Nitta (Gifu University), Henry Hess (Columbia University)

• Gliding Movements of Microtubule Driven by Kinesin Motors under External Force: Steering and Detachment (short paper). Takahiro Nitta (Gifu university), Kouki Kawauchi (Gifu university)

3:15-4:40 Bio-Inspired Communications and Computing (BICC)
Chair: Byeong-hee Roh (Ajou University)

• Characterization of E. coli Gene Regulatory Network and its Topological Enhancement by Edge Rewiring (regular paper). Satyaki Roy (Missouri University of Science and Technology), Vijay Shah (Missouri University of Science and Technology), Sajal Das (Missouri University of Science and Technology)


• Bio-inspired Resource Allocation for Multi-hop Networks (short paper). Youngjae Kim (Chung-Ang University), Jungryun Lee (Chung-Ang University), Jiyoung Jung (Chung-Ang University), Eutteum Kong (Chung-Ang University), Uiseong You (Chung-Ang University), Chanyi Park (Agency for Defense Development), Myoung-hun Han (Agency for Defense Development), Byeonhoo Choi (Ajou University), Byeong-hee Roh (Ajou University)

4:45-6:10 Modularization for Practical Software Engineering (MPSE)
Chair: Hiroaki Fukuda (Shibaura Institute of Technology)

• On the Computational Complexity of Software (Re)Modularization: Elaborations and Opportunities (regular paper). Todd Wareham (Memorial University of Newfoundland)

• On the Computational Complexity of Designing and Reconfiguring Component-based Software Systems (regular paper). Todd Wareham (Memorial university of Newfoundland), Marieke Sweers Radboud (University Nijmegen)

• Mixing of Join Point Interfaces and Feature-Oriented Programming for Modular Software Product Line (short paper). Cristian Vidal (Universidad de Playa Ancha), David Benavides (University of Seville), Paul Leger (Universidad Católica del Norte), Jose Angel (INRIA), Hiroaki Fukuda (Shibaura Institute of Technology)
• A Tool for Visualizing Buffer Overflow with Detecting Return Address Overwriting (short paper). Isao Sasano (Shibaura Institute of Technology)

• Modular Asynchronous Web Programming: Advantages & Challenges (short paper). William Mateus Boeira da Rocha (Shibaura Institute of Technology), Hiroaki Fukuda (Shibaura Institute of Technology), Paul Leger (Universidad Catolica del Norte Chile)

4:45-6:05 Biological Computing and Bio-medical Informatics (BCBI) II
Chair: Andrew Schumann (University of Information Technology and Management in Rzeszow)

• A Rough Set Version of the Go Game on Physarum Machines (regular paper). Krzysztof Pancerz (University of Information Technology and Management in Rzeszow), Andrew Schumann (University of Information Technology and Management in Rzeszow)

• Bio-inspired Computation Approach for Tumor Growth with Spatial Randomness Analysis of Kidney Cancer Xenograft Pathology Slides (regular paper). Aydin Saribudak (The City College of New York), Yiyu Dong (Memorial Sloan Kettering Cancer Center), James Hsieh (Memorial Sloan Kettering Cancer Center), M. Umit Uyar (The City College of New York)

• From Swarm Simulations to Swarm Intelligence (regular paper). Andrew Schumann (University of Information Technology and Management)

6:05-7:25 Artificial, Biological and Bio-Inspired Intelligence (ABBII)
Chair: Tomohiro Shirakawa (National Defense Academy of Japan)

• Collective Homeostasis and Time-resolved Models of Self-organised Task Allocation (regular paper). Bernd Meyer (Monash University), Anja Weidenmuller (University of Konstanz), Rui Chen (Monash University), Julian Garcia (Monash University)

• A Dynamic Step-size Adaptation Roach Infestation Algorithm for Constrained Engineering Optimization Problems (regular paper). Ibidun Obagbuwa (University of KwaZulu-Natal), Manoj Maharaj (University of KwaZulu-Natal)

• Implementation of Human Cognitive Bias on Naive Bayes (regular paper). Hidetaka Taniguchi (Tokyo Denki University), Tomohiro Shirakawa (National Defense Academy of Japan), Tatsuji Takahashi (Tokyo Denki University)

• Species Identification Using Part of DNA Sequence: Evidence from Machine Learning Algorithms (regular paper). Taha Alhersh (Monash University Malaysia), Brahim Belhaouari (Sharjah University), Hamada R. H. Al-Abi (Swinburne University of Technology)
BIICT 2015:
The Second International Workshop on Brain-Inspired Information Communication Technologies (BIICT)
4:15-5:30, December 3 (Thu)

- A Consideration of Realizing the Brain Inspired Computer (Invited). Kosuke Nishihara (NEC Corporation), Norihiko Taya (NEC Corporation), Toshiyuki Kanoh (NEC Corporation)

- Fluctuation in the brain and a possible application for nonparametric hidden Markov process. Jun-nosuke Teramae (Osaka University)

- VLSI Pulse-Coupled Phase Oscillator Networks toward Spike-based Computation (Invited). Hakaru Tamukoh (Kyushu Institute of Technology) and Takashi Morie (Kyushu Institute of Technology).
Bioinformatics 2015:
International Workshop on Bioinformatics

12:30-2:00, December 5 (Sat)

- Robust Functional Profile Identification for DSC Thermograms. Amy Kwon (Seoul National University), Dianxu Ren (University of Pittsburgh), Ming Ouyang (University of Massachusetts, Boston), Nichola Garbett (University of Louisville)

- Metabolic Network Construction Using Ensemble. Seongho Kim (Wayne State University), Joohyoung Lee (Wayne State University), Hyejeong Jang (Wayne State University), Xiang Zhang (University of Louisville)

- A Classification-based Quantitative Approach for SILAC. Seongho Kim (Wayne State University), Joohyoung Lee (Wayne State University)

- Clustering of Functional Data by Band Depth. Amy M. Kwon (Seoul National University), Ming Ouyang (University of Massachusetts Boston)

- Studying X Chromosome Inactivation using Single Cell Transcriptome. Kyoung-Jae Won (University of Pennsylvania)
CMVC 2015:
The First International Workshop on Computational Models of the Visual Cortex: Hierarchies, Layers, Sparsity, Saliency and Attention

9:00-4:00, December 4 (Fri)

- Comparing the brain’s representation of shape to that of a deep convolutional neural network. Dean A. Pospisil, Anitha Pasupathy and Wyeth Bair

- Learning Abstract Classes using Deep Learning. Sebastian Stabinger, Antonio Rodríguez-Sánchez and Justus Piater

- Tutorial 1: COSFIRE: A brain-inspired approach to visual pattern recognition. Antonio Rodríguez-Sánchez

- A Deconvolutional Strategy for Implementing Large Patch Sizes Supports Improved Image Classification. Xinhua Zhang and Garrett Kenyon


- Towards a mesoscopic-level canonical circuit definition for visual cortical processing. Georg Layher, Tobias Brosch and Heiko Neumann

- Event based optical flow on neuromorphic hardware. Tobias Brosch and Heiko Neumann

- Propagating Waves as a Cortical Mechanism of Direction-Selectivity in V1 Motion Cells. Stewart Heitmann and Bard Ermentrout

- Spatial scale of correlated signals in 7T BOLD imaging. Andrew Parker, Holly Bridge and Gaëlle Coullon

- Tutorial 2: A discussion on Deep Learning, Convolutational Neural Networks and Sparse coding. George Azzopardi

- A Study of the Role of the Maintained-Discharge Parameter in the Divisive Normalization Model of V1 Neurons. Tadamasa Sawada and Alexander Petrov

- Changes in variance of neuronal signals may be perceptually relevant for stereo vision. Nela Cicmil, Andrew Parker and Kristine Krug
PhysNet 2015:
The First International Workshop on Physarum Transport Networks (PhysNet)

8:20-12:40, December 3 (Thu)
3:00-5:45, December 3 (Thu)
8:00-12:30, December 4 (Fri)
9:00-12:30, December 5 (Sat)

• Dynamics of Physarum microdroplets – an example for mechanochemical pattern formation in active biological matter, Markus Bär, PTB Berlin

• Cortical wave patterns in giant Dictyostelium cells, Carsten Beta, Universität Potsdam

• Automated analysis of Physarum network structure and dynamics, Mark Fricker, University of Oxford

• A systems genetics approach to the sporulation control network in Physarum polycephalum Wolfgang Marwan, Otto-von-Guericke-Universität Magdeburg

• The search for the determinants of insertional RNA editing in Physarum polycephalum mitochondrial RNAs, Ralf Bundschuh, The Ohio State University

• Decision-making without a brain: the case of the slime mold Physarum polycephalum, Simon Garnier, NJ Institute of Technology

• P. polycephalum can compute shortest paths, Michael Dirnberger, MPI für Informatik, Saarbrücken

• Towards an open online repository of P. polycephalum networks and their corresponding graph representations, Michael Dirnberger, MPI für Informatik, Saarbrücken

• A low-cost bio-imaging and incubation system, Christina Oettmeier, Universität Bremen

• Learning with amoeba aboard the BioBus, Ben Dubin-Thaler, BioBus NYC

• Interactive cloud experimentation for Biology: systems architecture and educational use case, Ingmar Riedel-Kruse, Stanford University

• Slime mould as an artistic medium: creativity and collaboration with the non-human, Theresa Schubert, Bauhaus-Universität Weimar

• A malleable metaphor: Physarum polycephalum as artistic and educational medium, Heather Barnett, University of the Arts London

• Physarum foraging patterns and ceramic decoration, Natalie Andrew

• Social Bacteria, Nurit Bar Shai, Genspace NYC

• Efficient mixing of Protoplasm in tubular network of the slime mould Physarum polycephalum, Marcus Hauser, Universität Magdeburg

• Motifs of growth and fusion govern Physarum polycephalum network formation, Adrian Fessel, Universität Bremen

• Growth pattern of Physarum polycephalum during starvation, Jonghyun Lee, Universität Bremen

• A close look at ameboid locomotion: an integrated picture of a migrating starvation-included foraging of Physarum polycephalum, Christina Oettmeier, Universität Bremen
• Adaptation of fluid flow in the slime mould Physarum polycephalum, Karen Alim, MPI for Dynamics and Self-Organization

• Investigation of peristaltic pumping as a cellular motility mechanism, Owen Lewis, University of Utah

• Coordination of contractility, adhesion and flow in migrating Physarum amoebae: experiments and modelling, Robert Guy, UC Davis

• Coordinations of intracellular flow, calcium signal and cellular contraction in migrating physarum, Shun Zhang, UC San Diego

• Periodic traction in migrating large amoeba of Physarum polycephalum, Jean Paul Rieu, U Claude Bernard Lyon

• Reproducing contact inhibition of locomotion probabilities of colliding cells migrating on micro-patterned substrates, Dirk Kulawiak, Technische Universität Berlin

• Quantitative comparison of plasmodial networks of different slime molds, Martin Grube, Universität Graz

• Analysis on the exploratory behavior of the Physarum plasmodium in an open space, Tomohiro Shirakawa, National Defense Academy of Japan

• Three-dimensional imaging of structural development in fruiting body of field collected true slime molds, Yuka Yajima, Kyoto University

• The Amoeboflagellate Transformation (AFT) in Physarum polycephalum: many questions - some answers, Mark Adelman, Webmaster of PhysarumPlus