IEEE BigComp 2017 | IEEE computer society | Data Engineering | Korean Institute of Information Scientists and Engineers

CALL FOR PARTICIPATION

2017 IEEE International Conference on

Big Data and Smart Computing

February 13-16, 2017, Jeju Island, Korea

http://www.bigcomputing.org

You are invited to attend the 2017 IEEE International Conference on Big Data and Smart Computing 2017 (IEEE BigComp2017). It provides an international forum for exchanging ideas and information on big data and smart computing fields which have recently drawn much attention and interests

Keynote Speech 1

Title : Bio-Synergy Analysis with a Virtual Human System CODA

Speaker : Doheon Lee (Bio-Synergy National Research Center/KAIST, Korea)
http://biosoft.kaist.ac.kr/~dhlee

Abstract :

Recently, there are growing interests in combinational bio-agents interacting with multiple targets to overcome the limitations of the current single target approaches. Many drug development efforts based on the Paul Ehrlich's magic bullet principle, where a single therapeutic agent with ideal selectively could successfully regulate a single target causing a particular disease, have been suffering critical hindrances including unwanted off-target effects and degraded efficacy. Synergistic regulation of multiple targets with multiple agents is expected to remedy those hindrances. Furthermore, recent trends of 4P healthcare require more comprehensive spectrum of bio-agents for disease prevention as well as treatment. Functional food and ingredients have drawing increasing attention especially for preventive medicine and life-time healthcare. As they are composed of multiple components inherently, their precise interactions with human physiology are thought to be synergistic regulation of multiple targets with multiple agents This talk introduces a national initiative where multiple-agent-multiple-target systems biology technology for natural product-based healthcare is being developed. Core components of the technology platform are virtual cell and human systems, which are computational models of molecular, cellular, and organ-level physiological mechanisms. The synergistic effects of multiple agents on multiple targets are simulated and predicted with those virtual systems, and validated in real systems including model cells and animals.

Keynote Speech 2

Title : Machine Learning: Status and Perspectives

Speaker : Zhi-Hua Zhou (Department of Computer Science & Technology, Nanjing University, China)
http://cs.nju.edu.cn/zhouzh/

Abstract :

Machine learning has achieved great success in both research and application during the past decade. It originated as a research branch of artificial intelligence (AI), and becomes the mainstream of current AI research. In this talk, we will briefly introduce the progress and status of machine learning, and discuss on some future perspectives. We will comment on strengths and weakness of deep learning. Then, we will talk about challenges and opportunities introduced by open environment machine learning tasks. Moreover, considering that in its current form of "data + algorithm", machine learning suffers from many weakness or even bottlenecks, such as the need of large amount of training data, the difficulty of adapting to environmental change, the incomprehensibility, etc., we advocate to explore the form of learnware, which is a well-performed pre-trained learning model with a specification explaining its purpose and/or specialty. Learnwares can be put into a market, such that when one is going to tackle a machine learning task, rather than building his model from scratch, he can do it in this way: Figure out his own requirement, and then browse/search the market, identify and adopt a good learnware whose specification matches his requirement. In some cases he can use the learnware directly, whereas in more cases he may need to use his own data to adapt/polish the learnware. Nevertheless, the whole process can be much less expensive and more efficient than building a model from scratch by himself. If learnwares come to reality, strong machine learning models can be achieved even for tasks with small data, and data privacy will become a less serious issue for machine learning tasks. More importantly, it will enable common end users to achieve tricky learning performances that previously can only be achieved by machine learning experts.

Invited Speech

Title : Computational Methods for Large-Scale Microbiome Data Analysis

Speaker : Xiaohua Tony Hu (College of Computing & Informatics, Drexel University, USA)
http://www.cis.drexel.edu/faculty/thu/

Abstract :

We know little about microbes. Recently, huge amounts of data are generated from many microbiome projects such as the Human Microbiome Project (HMP), Metagenomics of the Human Intestinal Tract (MetaHIT),etc. These datasets provide opportunities to study the mystery of the microbial world, and analyzing these data will help us to better understand the function and structure of the microbial community of the human body, earth and other environmental eco-systems. However, the huge data volume, the complexity of the microbial community and the intricate data properties have created a lot of opportunities and challenges for data analysis and mining. In this talk, I will discuss a computational framework to tackle these challenging issues, focusing on the following three tasks: 1) visualization approaches to visualize microbiome data and to infer microbial interactions and relations; 2) computational methods for identifying and visualizing higher-order microbial interactions and relations from three types of microbiome datasets: metagenomes, bacterial genomes and literatures respectively; 3) the extracted interactions and relations from different knowledge sources will be integrated in a knowledge graph. Statistical and machine learning approaches is discussed for consistency checking of inferred microbial interactions and relations.

Workshops

1. **The 2nd International Workshop on Big Data Analytics for Healthcare and Well-being (BigData4Healthcare 2017)**
   - Date : February 13, 2017
   - Organizer : Ho-Jin Choi, Lingyun Zhu and Min Song
   - Website : http://sigai.or.kr/workshop/bigcomp/2017/big-data-for-healthcare/
2. **The 3rd Exobrain Workshop – Natural language question answering for human-machine knowledge communication (Exobrain 2017)**
   - Date : February 13, 2017
   - Organizer : Sang-Kyu Park and Ho-Jin Choi
   - Website : http://sigai.or.kr/workshop/bigcomp/2017/exobrain/
3. **The International Workshop on Affective and Sentimental Computing (ASC 2017)**
   - Date : February 13, 2017
   - Organizer : Haoran Xie, Tak-Lam Wong, Fu Lee Wang, Raymond Wong and Xiaohui Tao
   - Website : http://www.cihe.edu.hk/asc2017/

Conference Program (At a Glance)

TIME	Track 1 (CRYSTAL)	Track 2 (JADE)	Track 3 (AMETHYST)
Day1: February 13 (Monday), 2017			
08:00 - 18:00	Registration		
08:30 - 09:30		WS-1: Keynote Speech	
09:30 - 10:30			
10:30 - 11:00 (CB)		WS-1: BigData4Healthcare	
11:00 - 12:30			
12:30 - 14:00		Lunch (AZALEA Restaurant)	
14:00 - 15:00		WS-2: Keynote Speech	
15:00 - 16:00	Tutorial-1		WS-3: ASC 2017
16:00 - 16:30 (CB)		WS-2: Exobrain	
16:30 - 18:00			
18:00 - 18:30	Break		
18:30 - 20:00	Welcoming Reception (CRYSTAL)		
Day2 : February 14 (Tuesday), 2017			
08:00 - 18:00	Registration		
08:30 - 10:30	Regular Session-1	Regular Session-2	Regular Session-3
10:30 - 10:40	Coffee Break		
10:40 - 11:00	Opening		
11:00 - 12:30	Keynote Speech-1		
12:30 - 14:00	Lunch (AZALEA Restaurant)		
14:00 - 16:00	Regular Session-4	Regular Session-5	Regular Session-6
16:00 - 17:00	Invited Talk		
17:00 - 18:00	Poster Session-1	Poster Session-2	Poster Session-3
18:00 - 19:30	Banquet (CRYSTAL)		
Day3 : February 15 (Wednesday), 2017			
08:00 - 18:00	Registration		
09:00 - 10:30	Keynote Speech-2		
10:30 - 11:00	Coffee Break		
11:00 - 12:40	Regular Session- 7	Regular Session-8	Regular Session-9
12:40 - 14:00	Lunch (AZALEA Restaurant)		
14:00 - 16:00	Regular Session-10	Regular Session-11	Regular Session-12
16:00 - 16:30	Coffee Break		
16:20 - 17:50	Panel Discussion		
17:50 - 18:00	Closing		
Day4 : February 16 (Thursday), 2017			
08:00 - 18:00	Registration		
09:00 - 10:30	Business Meeting		
10:30 - 11:00	Coffee Break		

Registration

Registration

* Author Registration Deadline: January 16, 2017

* Early Registration Deadline: ~~February 1, 2017~~ February 8, 2017

Conference Registration Fee

		Author Registration (by Jan. 16, 2017)	Early Registration (by Feb. 8, 2017)	Late(or On-Site) Registration
Regular	Member	USD 650	USD 650	USD 750
	Non-Member	USD 850	USD 850	USD 950
Student	Member	-	USD 300	USD 400
	Non-Member	-	USD 400	USD 500

Registration Guideline

1. All accepted paper registration should be made **by Jan. 16, 2017.**
   Manuscripts received after this date will NOT be published in the proceedings of this conference.
2. All accepted paper must be registered as Regular registration.
   If multiple papers are accepted, each paper SHOULD be registered as Regular registration.

Useful Information

For a detailed program and information, please visit the BigComp 2017 web site at http://conf2017.bigcomputing.org/

For more information

- **Home Page : http://conf2017.bigcomputing.org/**
- **Contacts : BigComp 2017 secretariat (ejmoon@kiise.or.kr)**

ONLINE REGISTRATION