



# APBIONET NEWSLETTER

## VOLUME 16 | DEC 2023

Advancing Bioinformatics and Allied Disciplines in the Asia-Pacific Region

### NEWS HIGHLIGHT

#### The 22nd International Conference on Bioinformatics (InCoB 2023)

By:

**Prof Jyotsna Batra, Conference Chair, InCoB 2023 & Dr Srilkashmi Srinivasan,  
Co-Chairs, InCoB 2023, Queensland University of Technology, Brisbane, Australia**

During the second week of November 2023 (12-15 Nov), we held our 22nd International Conference of Bioinformatics at the Translational Research Institute, Brisbane, Australia. Aligning with the theme “Translational Bioinformatics Transforming Life”, the conference featured outstanding oral presentations, posters and workshops by reputed bioinformaticians across the globe.

We kick-started Day one (1) of the conference with three (3) parallel workshops in bioinformatics featuring seven (7) distinguished speakers. Day two (2), Monday, started off with the opening ceremony moderated by our eminent panellists, Prof Margaret Sheil, Prof Scott Bell, Prof Lyn Griffiths, Prof Jyotsna Batra, Prof Shoba Ranganathan, and Dr Harpreet Singh. This was followed by Keynote lectures by Dr Thomas J. Diefenbach on “Navigating Immune Cell Dynamics at the Tissue Level: A Multi-modal Approach” and Prof Phoebe Chen on “Biomedical Data using Artificial Intelligence”, invited talks by Prof Rupert Ecker, Dr Lukas Kenner and oral presentations covering clinical bioinformatics and HPC & AI in bioinformatics. Our first Poster Session of the conference was held at the lunch break. We wrapped up Day 2 with a conference dinner at Ship Inn, Brisbane to foster networking and international collaborations.

Tuesday, Day three (3) kicked off with a keynote talk by Prof Saman Halgamuge on “Pushing the boundaries of Machine Learning for applications in Medicine”, invited talks by A/Prof Mikael Boden, A/Prof Sonika Tyagi, Dr Luis Pedro Coelho and Prof David Ascher; and oral presentations covering emerging areas, such as immunoinformatic, 3DSIg Satellite meeting, Transcriptomics and epigenetics and Integrative platforms. Over lunch, we had our second poster session and APBioNET AGM. We finished off the day with a great networking session, open to all participants and celebrated the 25th Anniversary of APBioNET, where 12 participants received APBioNET travel awards. Thanks to Prof Shoba Rangathan, Dr Harpreet Singh and Dr Latha Narayan for sharing their archives, and achievements of APBioNET over the last 25 years.



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On Wednesday, we wrapped up the Conference with keynote talks by Prof Melissa Davis on “Methods for multi-scale analysis of spatial transcriptomics data,” and Prof Yang Zhang on “Toward the solution of the protein structure prediction,” invited talks by Prof Brian Lovell and oral presentations in three parallel sessions covering protein informatics, drug design and discovery and biological patterns and profiles. There was a special, engaging Education track session in the afternoon and two workshops post the awards and closing ceremony.



We received an overwhelming number of more than 132 abstract submissions and awarded four (4) InCoB 2023 best oral presentations and three (3) best poster awards (partly sponsored by the MDPI, Cancers). Thanks to the Scientific Programme committee for selecting the best oral and poster presentation. Congratulations to all the recipients!

A huge thank you to the Attendees, Presenters, Session Chairs, and all that helped to organize the Conference. Each of you contributed to its success. We hope to see you for the next InCoB!



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Along with everyone mentioned above, I would also like to recognize the:

**Steering committee (<https://incob.apbionet.org/incob23/committee/>)**

Prof Jyotsna Batra, Prof M. Asif Khan, Prof Shoba Ranganathan, Ms Nurul Salwanie Che Wahid, Dr Harpreet Singh, Dr Srilakshmi Srinivasan.

**Local organising committee**

Dr Rupert Ecker, Dr Asmerom Sengal, Dr Kunal Bhatt, Ms Namrata Bhattacharya, Dr Achala Vitharanage, Ms Evelyn Ng, Ms Halimat Atanda, and Ms Thi Viet Trinh Dang, Dr Srilakshmi Srinivasan, Prof Jyotsna Batra

**Abstract Committee**

Prof Jyotsna Batra, Prof Shoba Ranganathan, Prof Asif M. Khan, Dr. Harpreet Singh, Dr. Latha Narayanan

**Workshop Moderators**

Dr Mike Thang, Dr Cameron Hyde, Ms Navya Tyagi, Dr Tyrone Chen, A/Prof Sonika Tyagi, Dr Gokce Oguz, Dr Adaikavalan Ramasamy, Dr Ashar Malik, Dr Alex de Sa, Dr Vladimir Morozov, Prof David Ascher, Dr Yoochan Myung, Dr Thanh-Binh Nguyen, and Dr Stephanie Portelli

**Education track Panellists**

Dr. Wai Keat Yam, Dr. Annette McGrath, Dr Madhavi Ganapathiraju, Prof Asif M. Khan and Dr Cheong Xin Chan.

**Session Chairs**

Prof Rupert Ecker, Dr Shivashankar Hiriyur Nagaraj, Prof Jong Park, Prof Jyotsna Batra, Prof Yang Zhang, Dr Latha Narayanan, Prof Shoba Ranganathan, Prof David Ascher, A/Prof Mikael Boden, A/Prof Sonika Tyagi, Dr Thomas J. Diefenbach, Prof Brian Lovell, Dr Srilakshmi Srinivasan, Prof Melissa Davis, Dr Yam Wai Keat and Dr Amy Gurd

**Travel Grant Coordinator**

Prof M. Asif Khan, Ms Nurul Salwanie Che Wahid, Dr Harpreet Singh, Dr Latha Narayanan

**Exhibitors**

Platinum Sponsor: TissueGnostics

Silver Sponsors: QUT-CGPH, TRI

Organizers: QUT, TRI, APBioNET

**Award Winners**

- Oral presentation
- Ms Tong Si (Winner)
- Mr Sriram Gummadi (Recommended)
- Mr Vignesh Arunachalam (Recommended)
- Dr Asher Malik (Recommended)

**Poster presentation**

- Dr Omer Alkhnbashi (Winner)
- Ms Namrata Bhattacharya (Recommended)
- Ms Vitharanage Achala Shenali Fernando (Recommended)

It has truly been my honour to serve as Conference Chair and thank you all for sharing in it with me. I look forward to seeing you all in Japan for the first ever Asia Pacific Bioinformatics Joint Congress (APBJC)!

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### NEWS HIGHLIGHT

#### 7<sup>th</sup> International Symposium on Bioinformatics (InSyB 2023)

By: Xavier Chee, PhD

(APBioNET, Swinburne University of Technology, Sarawak, Malaysia)

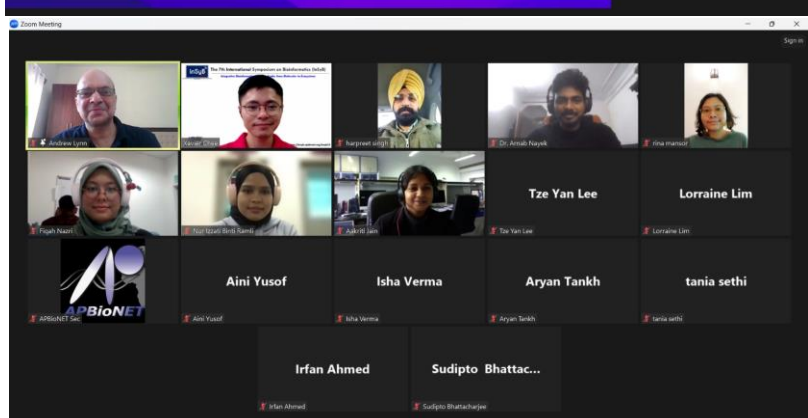
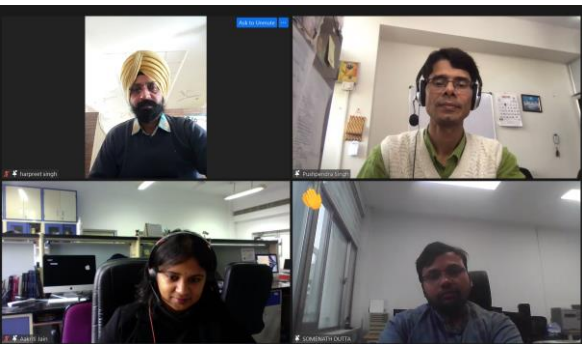
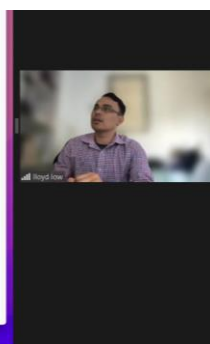
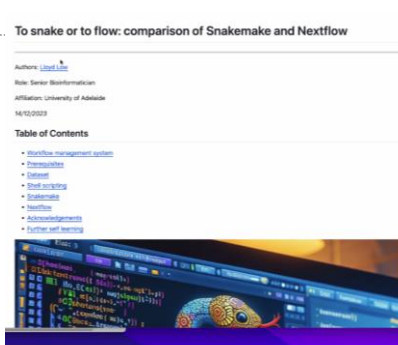
The 7th International Symposium for Bioinformatics, InSyB 2023, successfully unfolded on December 14, 2023, adopting an online format. The symposium centered around the theme of 'Integrative Bioinformatics: Bridging Scales from Molecules to Ecosystems', featuring a lineup of distinguished keynote speakers.

Assoc Prof. Sarinder Kaur delved into the realm of machine learning in health informatics, while Prof Kiyoko Aoki-Kinoshita presented insights into the Japanese Human Gycome Atlas, and Prof Andrew Lynn shared insights on predictive systems for biotic agents for remediation. Their expertise enriched our understanding of the field of bioinformatics.

The symposium has also featured student ambassador's presentations on their ongoing project with their mentors. Both Mr. Somenath Dutta and Ms. Aakriti Jain were invited to the special session from the Student Ambassador cohort of 2023. The session was chaired by Dr. Pushpendra Singh, and was well received by the participants.

In addition to the above enlightening talks, two workshops were held. Dr. Wai Low Yee led a workshop on computational pipelines, focusing on tools Snakemake and Nextflow. Separately, Dr. Michael Hu conducted an engaging session on leveraging ChatGPT for bioinformatics.

Despite the short notice, InSyB2023 attracted 124 registrations, reflecting the fervour within our community to explore and expand our knowledge base. Looking ahead, I fervently anticipate InSyB2024 as we continue to grow the field of bioinformatics and its applications towards scientific advancements.



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### LATEST ON YOUTUBE CHANNEL

**The 21<sup>st</sup> International Conference on Bioinformatics (InCoB 2022)**  
VIRTUAL | 21 – 23 NOVEMBER 2022

**KEYNOTE SPEAKER TALK HIGHLIGHTS:**  
**TALK TITLE: Epitopological sparse deep learning: a brain-inspired training for artificial neural networks**

**ABSTRACT:**  
Sparse training (ST) aims to improve deep learning by replacing fully connected artificial neural networks (ANNs) with sparse ones. ST is promising but at an early stage, therefore it might benefit to borrow brain-inspired learning paradigms such as epitopological learning (EL) from complex network intelligence theory. EL is a field of network science that studies how to implement learning on networks by changing the shape of their connectivity structure (epitopological plasticity). EL was conceived together with the Cannistraci-Hebb (CH) learning theory according to which the sparse local-community organization of many complex networks (such as the brain ones) is coupled to a dynamic local Hebbian learning process and contains already in its mere structure enough information to partially predict how the connectivity will evolve during learning. One way to implement EL is via link prediction: predicting the existence likelihood of each nonobserved link in a network. CH theory inspired a network automata rule for link prediction called CH3-L3 that was recently proven to be very effective for general purpose link prediction. Here, starting from CH3-L3 we propose a CH training (CHT) approach to implement epitopological sparse deep learning in ANNs. CHT consists of three parts: kick start pruning to hint the link predictors epitopological prediction, to shape the ANN topology; and weight refinement, to tune the synaptic weights values. Experiments on several datasets compare the efficiency of CHT and other ST-based algorithms in speeding up the ANN training across epochs. While SET leverages random evolution and Rgl, adopts gradient information, CHT is the first algorithm in ST that learns to shape sparsity by using the sparse topological organization of the ANN.

**EARLY BIRD REGISTRATION DEADLINE : OCTOBER 31, 2022**

**Organisers:**  
Computational Bioscience Research Center

For more info: <https://cbrccconferences.kau.ac.sa/incob2022>

Carlo Cannistraci, Tsinghua University, China

**APBioNETTalks**  
Discover and Share Bioinformatics

**Applications of long read sequencing in plant genomics**

**October 17, 2022, 6 UTC/14 SGT**

**Register Now!** <https://apbtalks.apbionet.org/> or [bit.ly/APBTalks6](https://bit.ly/APBTalks6)

**Prof. Dr. Boas Pucker**  
Institute of Plant Biology, TU Braunschweig

APBioNetorg APBioNET

#### Event: InCoB2022 (Virtual)

**Speaker:** Carlos Cannistraci, Tsinghua University, China

**Title:** Epitopological sparse deep learning: a brain inspired training for artificial neural networks

#### Event: APBioNETTalks (Virtual)

**Speaker:** Boas Pucker

**Title:** Application of long read sequencing in plant genomics



### The 7th International Symposium on Bioinformatics (InSyB)

*Integrative Bioinformatics: Bridging Scales from Molecules to Ecosystems*



**Speaker:** Kiyoko F. Kinoshita, Soka University, Japan

**Title:** Understanding the Extended Central Dogma through the Human Glycome Atlas Project



<https://insyb.apbionet.org/insyb23>

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## STUDENT AMBASSADOR HIGHLIGHTS

### Empowering Scientific Growth: A Journey through the APBioNET Student Ambassador Program (SAP)

By: Somenath Dutta<sup>1,2,3</sup>

<sup>1</sup> Asia Pacific Bio-Informatics Network, <sup>2</sup> Soka University, Japan, <sup>3</sup> Pusan National University, Busan, South Korea

I am writing to express my heartfelt gratitude for the incredible opportunity to be a part of the APBioNET Student Ambassador Program (SAP) 2023 term. First and foremost, I want to extend my sincere thanks to APBioNET for initiating and implementing such a remarkable program tailored for Asian students and researchers. The SAP has been a transformative experience, enabling me to learn and explore diverse aspects of research that have significantly enriched my academic journey.



I am especially grateful to my mentor, Prof. Kiyoko F. Kinoshita of Soka University, for her continuous guidance and support throughout the past year. Despite being immersed in my Ph.D. studies, participating in this training program has broadened my understanding of various research areas, providing me with valuable insights beyond the scope of my regular studies. Working with Prof. Kiyoko and her team has been an exciting and fruitful experience. The support I received from her lab was invaluable, and together, we embarked on some intriguing research projects that are still ongoing. The connection between us was established through the APBioNET SAP program, and I am immensely grateful for the opportunities it has opened up.

One of the highlights of my SAP journey was the chance to participate in CompBio2023 at NUS Singapore. Thanks to APBioNET, I secured funding from NSF USA to cover all registration fees. Additionally, as an SAP fellow, I learned about ASCS2023, where APBioNET assisted me in securing a full waiver for the program. I am thrilled to share that I not only attended ASCS2023 but also won the quiz competition—an accomplishment I attribute to the support and encouragement from the SAP program. The blend of research work and co-curricular activities facilitated by APBioNET has played a crucial role in shaping me into an independent researcher. This was further exemplified when I was invited as an SAP fellow speaker at the 7th International Symposium on Bioinformatics 2023. The platform provided by APBioNET has been instrumental in showcasing my work to the scientific community.

Looking ahead, I am delighted to announce that our ongoing research, nurtured through the APBioNET SAP program, is poised to be presented at the upcoming Asia & Pacific Bioinformatics Joint Congress 2024 in Japan. This opportunity would not have been possible without the support and encouragement from APBioNET.

In summary, I want to express my deepest gratitude to APBioNET for making my 2023 an exceptionally productive and enriching year. I wholeheartedly recommend this program to all young researchers and juniors, as it has been a catalyst for personal and professional growth. Let us continue to grow together and stay connected with APBioNET for the betterment of our scientific community and society at large.

Thank you once again for this incredible opportunity and for the positive impact APBioNET has had on my academic and research endeavours.

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## UPCOMING EVENTS

**Event Name:** Asia-Pacific Bioinformatics  
Joint Congress 2024 (APBJC 2024)

**Event type:** Congress

**Date:** 22 – 25 October 2024

**Venue:** Okinawa, Japan

**Mode:** Physical

**Website link:** <https://apbjc.asia>

**APBJC 2024**  
**1st Asia & Pacific Bioinformatics Joint Conference**  
~JSBi, GIW, InCoB, APBC, and ISCB-Asia~  
**CREATING BIOINFORMATICS SYNERGY ACROSS THE ASIA & PACIFIC REGIONS**  
**Dates: 22 Tue - 25 Fri October 2024**  
**Venue: Okinawa, JAPAN**  
**NAHA CULTURAL ARTS THEATER NAHART**  
**Conference Chairs:**  
Wataru Iwasaki (The University of Tokyo)  
Kiyoko F. Aoki-Kinoshita (Soka University)  
URL : <https://www.apbjc.asia> (Contact information)MAIL: [apbjc2024@googlegroups.com](mailto:apbjc2024@googlegroups.com)

Japanese Society for Bioinformatics (JSB), The Asia Pacific Bioinformatics Network (APBioNET), International Society for Computational Biology (ISCB), Association of Asian Societies for Bioinformatics (AASBI), Global Organisation for Bioinformatics Learning, Education and Training (GOBLET), Bioinformatics Club for Experimenting Scientists (BioCes), Masyarakat Bioinformatika Dan Bioinformatika Indonesia (IMABDI), Supported by the Molecular Biology Society of Japan

The call for application to host International  
Conference on Bioinformatics 2025 (InCoB 2025)  
is now open



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*Bridging Ideas, Building Futures*



### Call for Student Council

#### Benefits:

- Leadership experience: Opportunity to represent APBioNET as a delegate in events/meetings
- Networking opportunities: Bioinformatics Grand Challenges, Research Consortium, Bioinformatics Registry
- Possible financial aid in representing APBioNET in external activities
- Publications opportunities
- Discounted membership

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