STUDENT AMBASSADOR HIGHLIGHT

APBioNET SAP - a myriad of opportunities for young researchers!
By: Aakriti Jain, APBioNET Student Ambassador (2022/2023)

The Student Ambassador Program (SAP) of APBioNet opens avenues to broaden our research initiatives and expand our research network. It provides the mentees opportunities to take up a research project under the guidance of a mentor, learn new skills, as well as engage in organizational activities of APBioNET. It ensures holistic development of a research scholar through its dynamic curriculum.

I was privileged to be selected for mentorship under Dr. Kiyoko F. Aoki Kinoshita, Soka University, Japan for APBioNET SAP 2022/2023. I pursued the program virtually and worked on curation of a dataset of glycosylphosphatidylinositol (GPI) anchored proteins of fungal organisms.

Our objective was to contribute this dataset to the GlyCosmos Portal, which aims at integration of glycosciences and serves as a repository of glycogenes, glycoproteins, glycolipids, pathways and diseases. GPI anchoring is a vital post translational modification (PTM), which occurs at the endoplasmic reticulum and guides the GPI anchored proteins (GPI-APs) to the cell surface for different physiological roles in various eukaryotes. In fungal organisms, the attachment of a GPI anchor at the carboxy terminal of proteins enables their translocation to the membrane and the cell wall. These GPI-anchored proteins play a critical role in fundamental processes like cell wall biosynthesis. Furthermore, their involvement in the organism's pathogenesis, achieved through biofilm formation and attachment to host surfaces, highlights their vital importance for the survival of fungi.

Through a specific keyword-based search on publicly available data resources, we extracted a set of putative GPI anchored proteins of different fungal organisms and established literature backed criteria for filtering. Parameters such as the Serine-Threonine content, absence of a transmembrane domain and presence of a signal sequence at the amino terminal of the protein were used for dataset curation through python programming and tools like Emboss Pepstats, TMHMM v2.0, and Signal P v5.0 respectively. The integration of results obtained from these tools helped us obtain a targeted glycosylated protein dataset with physiological significance in fungal organisms and pathogens.

This dataset can serve as a useful resource for researchers assessing pathogenicity and extracellular surface physiology of fungal organisms. We are in the process of making this dataset publicly available and my learning of this SAP program continues even after the exhaustion of its official tenure. My experience at APBioNET SAP has been enriching and I am sincerely grateful of APBioNET, my mentor Dr. Kinoshita and my PhD supervisor Dr. Manish Kumar (Associate Professor, Department of Biophysics, University of Delhi, New Delhi, India) for this invaluable opportunity. I am sincerely grateful for the mentorship that not only imparted knowledge but also empowered me with the skills to conduct independent research—an invaluable asset that will undoubtedly shape my future endeavors.

As an APBioNET SAP mentee, I was also invited to deliver a rapid oral presentation at the International Symposium of Bioinformatics (InSyB 2023) conducted virtually in December 2023 to present a part of my work. I am thankful for this, and all the other opportunities extended by virtue of this transformative mentorship which not only broadened my understanding but also instilled confidence & capability in my research pursuits.
APBIONET NEWSLETTER
VOLUME 17 | MAY 2024

Advancing Bioinformatics and Allied Disciplines in the Asia-Pacific Region

“Bridging Ideas, Building Futures”

2024 STUDENT COUNCIL

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- Network and Collaborate:
  - Forge meaningful connections with peers, academicians, and industry leaders in the field of bioinformatics, opening doors to new learning and career opportunities
- Expand Horizons:
  - Engage with other bioinformatics societies and foster collaborative projects

More info: https://www.apbionet.org/student-council

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Report on Addressing Grand Challenges in Bioinformatics Education and Training @ Global Bioinformatics Education Summit 2024, New York, USA
By: Esra Büşra Işık (Bezmialem Vakif University, Turkey) & Mohammad Asif Khan (University of Doha for Science and Technology, Qatar)

1. Overview: Grand Challenges in Bioinformatics Education and Training
   Working Group Objective
   • Brainstorm with GBES participants on potential solutions to the grand challenges in bioinformatics education and training.
   • Encourage ongoing contributions to the effort beyond the summit.

2. Past WG Achievements
   • Establishment of Bioinformatics Grand Challenges Consortium (BGCC): BGCC Website
   • Publication in Nature Biotechnology: Link to Publication on the grand challenges in bioinformatics education and training.

3. Outcome of the Publication
   Identified seven grand challenges in bioinformatics education and training:
   GC1: Identifying fundamental knowledge and skills
   GC2: Supporting lifelong learning
   GC3: Training and equipping educators and trainers
   GC4: Keeping pace with computing and technology advances
   GC5: Promoting awareness of ethical, legal, and societal implications
   GC6: Practicing inclusivity and equity in bioinformatics education
   GC7: Ensuring the sustainability of bioinformatics education

BGCC Activities
   • Monthly meetings of the BGCC Bioinformatics Education and Training Working Committee to deliberate on the grand challenges, engage with the community, and brainstorm collectively to propose solutions.
2. Addressing the Grand Challenges in Bioinformatics Education and Training (Session #8A)

Title of Session: Addressing the Grand Challenges in Bioinformatics Education and Training

Session Leads:
- M. Asif Khan (University of Doha for Science and Technology, Qatar)
- Esra Büşra Işık (Bezmialem Vakıf University, Turkey)

Background Introduction
The landscape of bioinformatics education is rapidly evolving, posing several grand challenges that educators, learners, and stakeholders face today. This session delved into the intricacies of the seven identified Grand Challenges, providing attendees with a detailed overview and stimulating a rich discussion on practical solutions.

BES2024 Objectives
- To provide a comprehensive overview of the current challenges in bioinformatics education.
- To collaboratively identify and propose innovative solutions to these challenges.
- To strengthen the network of bioinformatics educators, learners, and professionals, fostering a collaborative community geared towards advancing the field.

Session Details
- Time: May 20, 2024, 4:00-6:00 PM EST
- Duration: 2 hours
- Format: Introduction & working group discussions

Background Resources
- Participants were encouraged to review the article detailing the seven grand challenges before attending the session.
Summary of the Session:

Achievements:
- Engaged participation from bioinformatics educators, learners, and professionals.
- Collected collaborative input via an Excel sheet.
- Shared the grand challenges in bioinformatics education and training with the community.

Learnings:
- Gathered innovative ideas for addressing these challenges.
- Gained insights into specific needs of various stakeholders.

Decisions:
- Prioritized actions such as developing more prioritized questions for each challenge.
- Formed working groups to tackle specific challenges.

Produced:
- Session summary document capturing key points and solutions
- Renewed community commitment to ongoing efforts in bioinformatics education.

Next Steps
- Continue to focus on key actions for stakeholders for each challenge.
- Promote continuous community engagement through meetings.
- Maintain communication with stakeholders for updates and collaboration.
- Document and share all progress and outcomes with the bioinformatics community.
- Seek additional funding and support for the initiatives.
ASIA & PACIFIC BIOINFORMATICS JOINT CONGRESS 2024 (APBJC 2024)

**Venue:** NAHA Cultural Arts Theater (NAHArt), Okinawa, Japan  
**Event Type:** Congress  
**Date:** 22 – 25 October 2024  
**Format:** Physical  
**Website:** https://apbjc.asia

**APBioNET Talks:** Dynamic modelling of chromosomal instability in somatic genomes  
**Speaker:** Dr. Bingxin Lu, University of Surrey, UK  
**Event Type:** Online  
**Date:** June 20, 2024  
**Time:** 10 AM BST/5 PM SGT  
**Website:** https://bit.ly/apbtalks9

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**MEMBERS HIGHLIGHT: KOUNTAY DWIVEDI**

“My first conference paper at InCoB2023 led me to an acceptance to a postdoctoral program opportunity at the Medical University of Vienna.”

Q: Can you tell us about your academic journey leading up to your acceptance into this prestigious postgraduate program?

A: My academic journey leading to acceptance in a dream-come-true postdoctoral program is as follows:

I completed my Bachelor of Computer Applications in 2013 and Master of Computer Applications in 2016. Being a coding enthusiast, I got placed to acquire industry experience at Cognizant before transitioning to pursue higher education. Following a year of professional experience, I started my pursuit of higher education by preparing for the Junior Research Fellowship (JRF) examination.

Successfully clearing the JRF exam, I got admitted to the University of Delhi for a doctoral program. During my PhD, I presented my first conference paper at InCoB2023, hosted at the Translational Research Institute in Brisbane, Australia. It was during this conference that I met with esteemed minds, including Prof. Shoba Ranganathan, Prof. Sonika Tyagi, Prof. Jyotsana Batra, and Prof. Rupert Ecker, with whom I engaged in discussing my interest in pursuing a postdoctoral position. Upon learning of an available opportunity at the Medical University of Vienna, I applied for the postdoctoral program and cleared the interview rounds, leading me to the acceptance into this esteemed program.

Q: What inspired you to pursue further studies in your field, particularly at this esteemed institute?

A: I am a passionate programmer, but an even passionate learner. I have a thirst for getting into the root cause of things that are particularly built on mathematical grounds. Thus, I opted for higher studies so as to get into a deeper understanding of the mathematical foundations of computing. During my PhD, I explored utilizing AI for medical applications, particularly in cancer prediction and survival analysis. I learnt that there are persistent gaps in the cancer treatment, which led me to seek opportunities through which I could actually contribute something meaningful to the medical community. When I discovered the postdoctoral program at the Medical University of Vienna, renowned for its advancements in medical research, I thought to seize the opportunity to further my research and make a remarkable opportunity in the field.

Q: How do you envision this postgraduate program aligning with your long-term career goals?

A: Being a computational scientist with a deep commitment towards progressing cancer treatment, I desire to integrate computer science with the medical field to provide innovative solutions. My goal is to leverage cutting-edge AI techniques to develop a method that facilitates early detection and accurate diagnosis/prognosis of cancer, thereby aiding healthcare professionals in improving patients’ survival. The postdoctoral program at the Medical University of Vienna is perfect for my long-term career aspirations. It offers the ideal platform to progress my research and collaborate with leading experts both in the field of computer science and biology. Through this program, I aim to contribute significantly to the development of novel techniques for cancer treatment.
Q: What specific areas of research or study are you most excited to explore during your time in this program?

A: During my tenure in this postdoctoral program, I am particularly enthusiastic about delving into two specific areas of research:

**Analysis of Histopathological Images**: Integrating machine and deep learning techniques to analyze and infer insights from histopathological images extracted from cancer patient biopsies excites me greatly. This new avenue allows me to broaden my expertise beyond cancer genomics data analysis, aiding me in understanding intricate nuances of cancer diagnostics and treatment.

**Understanding Cancer Biology**: Being a computer scientist, I always find myself short of biological knowledge. I am eager to immerse myself in the study of cancer biology through the eyes of medical and biology experts. I am blessed to have amazing supervisors that are experts in biology as well as in computer science. I will have an opportunity to engage in wet-lab work and in-silico experimentation, enabling me to gain foundational knowledge of cancer biology and its implications for computational research.

Q: How do you plan to contribute to the academic and research community within this esteemed institute?

A: I plan to contribute to the following to the academic and research community during my postdoc in the Medical University of Vienna:

**Collaboration**: I look forward to collaborating with amazing minds worldwide. By initiating interdisciplinary collaborations, I would aim to exchange ideas and expertise to collectively tackle the research gaps in cancer treatment.

**Journal/Conference Publications**: I will publish my findings and insights in reputable journals, presentations at conferences, and seminars. Further, I plan to actively engage in discussions and knowledge-sharing sessions to contribute to the academic community.

**Mentoring young minds**: Although not as experienced researcher as my supervisors, I am eager to mentor and support students and junior researchers. By offering guidance, expertise, and encouragement, I hope to inspire the next generation of scientists and contribute to their professional development.

Q: What do you see as the biggest challenges you might face during your postgraduate studies, and how do you plan to overcome them?

A: During my postdoctoral studies at the Medical University of Vienna, I anticipate that the biggest challenge will be to gain a deeper understanding of the foundations of cancer biology. This endeavor asks me to familiarize myself with the fundamental concepts of biology, a field outside my forte, i.e., computer science. To tackle this challenge, I plan to rigorously study and actively seek guidance from my supervisors and co-supervisors, who are experts in biology. Additionally, I will leverage the expertise of my students as well, since they will also have better knowledge of the field than myself. This collaborative approach will be crucial in overcoming the interdisciplinary challenges and advancing my research in cancer studies.
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Advancing Bioinformatics and Allied Disciplines in the Asia-Pacific Region

APBJC
JSBi, GIW, InCoB, APBC, and ISCB-Asia
22-25, October 2024
Okinawa, Japan

With a diverse array of keynote presentations, panel discussions, workshops, and poster sessions, APBJC2024 promises to be an enriching experience for all attendees. Whether you're a seasoned professional or a budding enthusiast, this conference offers a platform to exchange ideas, forge collaborations, and shape the future of bioinformatics. Don't miss your chance to be part of this transformative event. Register now and join us in shaping the future of bioinformatics!

Conference Information:
https://www.apbjc.asia/

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Q: How do you plan to balance your academic responsibilities with other commitments and interests during your time in this program?

A: Till date, I have struggled with maintaining discipline and responsibility in my daily routine, to be honest. Indeed, I sometimes engage myself too deeply in a task. However, I would try to make a change and plan to implement a structured timetable to organize my schedule. This timetable will include dedicated time for academic work, of course, as well as extracurricular activities such as learning German language, learning swimming, etc. As a huge fan of playing PC games, I believe they are excellent stress busters. Finally, being a workout person, I will integrate consistent exercises to keep physical and mental strength.

Q: What do you hope to gain personally and professionally from your experience at this esteemed institute?

A: During my tenure at the Medical University of Vienna, I aspire to deepen my expertise in cancer research, focusing on understanding the biological foundations of cancer and developing advanced computational approaches for diagnosis and treatment. Collaborating with leading experts in both computer science and biology, and utilizing state-of-the-art resources will enhance my research capabilities and broaden my academic network. Personally, I seek to foster time management skills, enabling myself to effectively balance professional life with personal life. Engaging in aforementioned extracurricular activities will aid my overall growth.

Q: What guidance would you offer your younger self from a decade ago, as a student? Are there any decisions or actions you would approach differently in hindsight?

A: Throughout my timespan as a student, I have taken numerous decisions, both right and wrong. However, I try not to dwell on past mistakes or excessively celebrate successes. I believe in learning from every experience and moving forward. One specific area I intend to focus on is improving my mathematics skills. Indeed, learning as a whole is a continuous process, nevertheless, I would like to encourage young minds to consistently practice Mathematics, as it is not just a fundamental discipline, but the language of the universe!
TRAVEL FELLOWSHIP APPLICATION TO APBJC 2024

for APBioNET members

We plan to award a small number of travel grants at a maximum amount of USD $500 to help defer travel costs which otherwise the participant would need to pay for themselves (i.e. costs not covered by any other grant). Students and post-doctoral trainees with accepted oral presentations will be given priority, but students with accepted posters can also apply. Only one author of an accepted oral/poster will be eligible for a travel grant. All applicants must be a member in good standing of APBioNET.

The travel grant will be on a REIMBURSEMENT BASIS either in cash at the Conference or paid through PayPal (awardees to indicate their preference when notified). The travel grant is for part payment of travel expenses and cannot be adjusted against registration fees or any other expense incurred in attending the conference.

The selection criteria are:

- The quality of the applicant’s abstract submission (as judged by the reviewers).
- The academic performance of the applicant based on the CV submitted.
- The level of economic development of the country where the student lives.
- To apply, please provide the following info:

1. Legal name (for financial purposes) Optional: (Name and title by which you prefer to be addressed)
2. Status (student, postdoc) and Proof ID scanned as PDF or JPEG.
   Note: Certification and/or proof of student or postdoc status must also be presented at the Conference to the Registration Desk for the reimbursement to take place.
3. Affiliation
4. Country
5. Brief statement about availability of other funding sources (quantum already awarded and/or being applied for)
6. Abstract submission ID and Title (in Text Format)
7. Your membership number in APBioNET
8. Proposed Budget of the Trip and how much requested and for what purpose (in text format)
9. Declaration of any previous travel grant awarded (in text format)
10. Also please provide us a brief CV with photograph and list of papers published in Word or PDF format. Prepare a single PDF file of your application and CV for submission to EasyChair: https://easychair.org/conferences/?conf=apbjc2024

Please name the PDF file as “APBJC2024TravelFellowship_X” before uploading, where X would be your LAST NAME.

All incomplete applications will not be processed.
Please note that the travel grant award is subject to acceptance of paper/poster for presentation at the conference.