The Bioinformatics Education Grand Challenge Eduthon

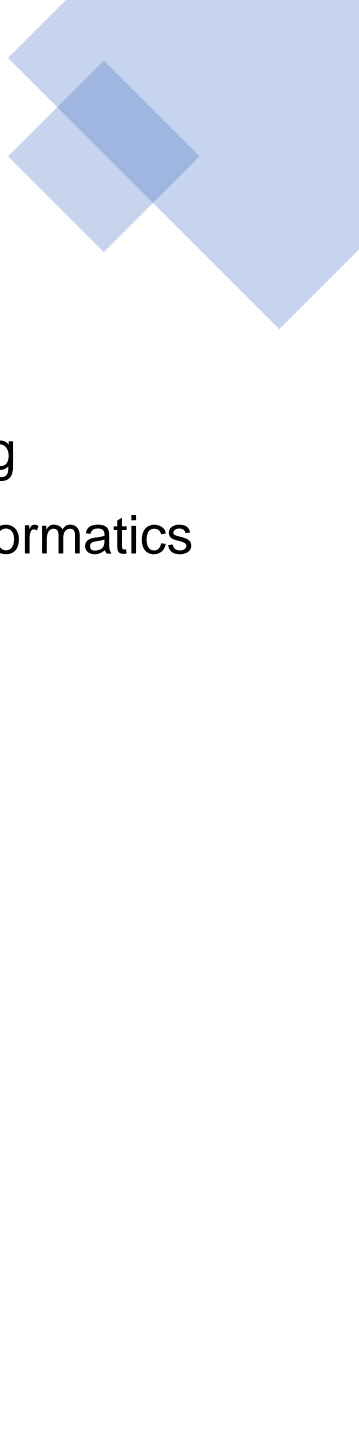Dr. Ayesha Fatima

Dr. Mohammad Asif Khan

Background

- Bioinformatics is an evolving field and it has come a long way since the first computational protein sequence analysis in the 1960s

- It is yet to reach its full potential

- For academicians, it has always remained a challenge on the best methods and pedagogy to teach the upcoming generation of life scientists

- Hence the idea of this eduthon was developed to bring in passionate bioinformatics enthusiasts and specialists and ask them to brainstorm on this most important and crucial problems faced by the community

- A grand challenge solution should not be something that can be easily resolved through money, resource, manpower, and/or time
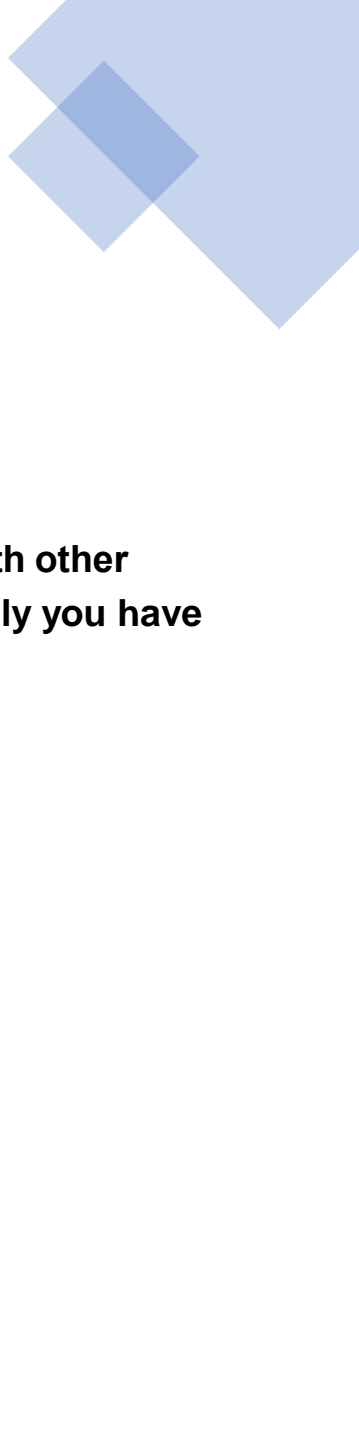
Objective

- To propose solutions to the grand challenges plaguing bioinformatics education and training
- To help chart the path for a sustainable bioinformatics education and career

How does it work?

- Teamwork
  - Teams of 3-5 work on the problem at hand
  - **In case you don't have a team, we can help pair you with other individuals working on a similar problem. But essentially you have to work in a team**

- The process
  - Register online
  - Attend CoBLET2022
  - Work on the problem chosen
  - Present your innovative solution
  - Possibly win a prize!

Plan of activities:

Day 1, 11th Oct, 2022

10:00 - 19:00

1. Before the opening ceremony, teams identify themselves at the registration desk for in-person attendees (Eduthon channel on Discord for virtual teams). The registration desk will be open at 10am on 11th October, 2022

2. Participants to gather in the conference hall (in-person)

3. Introduction of the event

4. The teams will be given the triggers for the topics they have selected during registration process

5. The teams will pick their leaders and scribes

6. Moderators/experts/coordinators are assigned to each group belonging to one grand challenge. Their role is only facilitation not helping the teams in their hackathon.

7. The in-person teams will be given workspace for discussion

8. For virtual they are directed to breakout rooms. They will have to bring their own devices.

9. The teams will be facilitated with technical and any other facilities that they might require.

10. The teams can start the eduthon.

11. The teams break for the lunch and opening ceremony and continue until 19:00 after the end of main event for day 1.

Plan of activities

Day 2, 12th Oct, 2022

9:00 – 17:00

1. The team meetings continue until lunch break
2. Lunch
3. Presentation of solutions @ 15:05 -16:05 on Oct 12, 2022
4. Award ceremony

Trigger 1: Essential skills for bioinformatics trainers

The methods and data types of bioinformatics are constantly changing and evolving. But, what are the mathematical, statistical and computational knowledge and skills that every student must know that are going to remain relevant to bioinformatics in the long term and are going to enable students to adapt to new data sources as they arise?

Trigger 2: Ways of solving the geographical lack of advanced training in some bioinformatics areas

- In some countries/regions, the trainings hardly ever reach to advanced levels due to the lack of experts in the country/region. Also, there is imbalance in the fields of expertise (for example, there are many people working in structural bioinformatics in one country, but difficult to find experts in genome informatics, which may make bioinformatics in the country difficult to grow). How do we bridge this gap?

Trigger 3: Fostering the ability of graduates to work across sub-disciplines and transcend them

Bioinformatics has evolved into a collection of "silos" - often very different disciplines from each other. For example structural bioinformaticians speak a very different language from single cell transcriptomics analysts and use very different methods. But the most exciting bioinformatics happens when bioinformaticians are able to bridge silos to discover new insights into how complex biological systems work. How do we foster the ability of graduates to work across sub-disciplines and transcend them?

Evaluation criteria

- Scope of impact on stakeholders who will benefit from the solution

- Viability of the solution

- Level of innovativeness

- Commitment and collaboration among the team

Moderators/facilitators

- Dr. Mohammad Asif Khan
  - Head of Big Data and Bioinformatics Lab, BILSAB
- Dr. Ayesha Fatima
  - Researcher at Big Data and Bioinformatics Lab, BILSAB
- Prof. Russell Schwartz
  - Researcher at Big Data and Bioinformatics Lab, BILSAB

Presentation Rules

- You are allowed 15 minutes including Q&A session.

- You can choose to present in any way you think will create an impact on the evaluators.

- There is no limit to number of slides or number of words per slide

- It is important to respect other's time. Hence, keep within your allowed presentation time limit

- Please upload your final presentations to the designated folder.
  https://drive.google.com/drive/folders/1HYdNgvOe2Qn_qMhSdoW0wRvy4Pbqtt65?usp=sharing

- Especially for virtual presenters
  - Ensure a good internet connection for smooth connectivity
  - Log-in well before your time to make sure, there are no technical difficulties during the presentation.

Best of Luck