

Topics for “Challenges for Machine Learning Facilitated Discussion & Breakout Groups”

Machine learning related topics:

1. To what extent is math necessary for making major breakthroughs in ML? For example, GPT-3, AlphaFold, and the impressive advances in generative modeling in recent years came without much mathematical theory. How does one make a case for the need for math in making major discoveries in ML?
2. What is the most promising path according to you to develop human-level AI systems? Does self-supervised learning have a role to play here? What are the major breakthroughs needed to achieve this grand goal?
3. What do you think are the most important open problems in ML that are likely to get solved in the next 5-10 years? What kind of impact do you foresee if they are indeed solved?
4. The field of ML is extremely fast-paced. What would you recommend to the early career researchers interested in a career in ML to keep track of the major developments in the field?
5. How do you think mathematics can help in the discussion around the ethics of AI?

Career related topics:

1. How one should look for and choose a PhD program and a suitable PhD advisor?
2. Which are the best advices to search for a Postdoctoral position?
3. How to achieve a good work-life balance for early career researchers? Have this been affected by the Covid-19 pandemic in the last two years.
4. Fellowships and grants. Which are the available options?
5. Importance of networking. How does it affects career perspectives and future options?
6. Managing relations with advisors, co-workers and other research groups. How one deals with power relations and competition?
7. As a Machine Learning researcher, which are the options outside academia?
8. Nowadays, Machine Learning research is performed by communities and researchers with different backgrounds. How should we address the lack of interactions between different communities? Do you have relevant examples?
9. How 8. is related to the dissemination of Machine Learning research? Where one should submit papers? Which are the most suitable conferences/journals depending on a topic?
10. Underrepresented groups in academics. How should we address the problem going forward?