CS492(C): I2R Report: Attending NeurIPS 2018

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1   Introduction

I would say attending a conference while I'm undergraduate was one of the most memorable and valuable experiences in my life. I have just finished URP(Undergraduate Research Participation) program in this semester, and the professor suggested me to attend NeurIPS 2018, in Montreal. I learned and met so many people from all over the world. I want to share my experience what I learned and some tips to attend the conference as an undergraduate participant.

2   Some tips and things that I learned

2.1   Some tips

Before the conference, the professor suggested me to read some abstracts before going there and I also strongly agree with this for a few reasons. First of all, there are so many papers at the conference. For instance, NeurIPS 2018, there are about 1000 accepted papers. It is almost impossible to catch papers you want to get information during the conference, so checking abstracts with keywords that you are interested in will be a nice way to enjoy the conference more. Plus, if you send a mail to the writer of the paper you're interested in before the conference, he/she would love your interest and might give you a good opportunity to keep in touch with him/her.

Plus, do not hesitate to ask the question at someone's question. Since most poster presentation, tutorial talk, invited talks are all summary of their work or a certain topic, so it is trivial that you don't understand all the points at once. Therefore, asking a lot of questions to the presenter would help you to understand the purpose and detail of the presentation much more clearly. Plus, since most of their work is not a thing that a god, many of them may have some limitations on their work. Therefore, try not to listen to their work with no critics. Try to think their work critically will help you understand their work more deeply.

2.2   What I learned

I also learned a lot of things. First of all, I learned the difference between good presentation/poster and a bad one. The presentation with many listens usually has a fascinating title and contains a lot of visual aids such as graphs and images. They do not contain too many texts or equations to help listeners to catch the concept of the poster easily. Also, the font size was quite large compared to the presentation with a few listeners. Good presenters tried not to explain their main results too deeply (like mathematical proof). Rather, they explained a lot about the purpose they had wanted to contribute, and the relation between their result and their contribution. It was just like sellers sell their products to consumers. To make people interested in the research topic while presentation, it is important to select a good topic, selecting visual aids in their poster, how do they explain the purpose of their research. (Listener would check more details in your paper if they are interested in!)

Plus, I learned about the importance of networking. I met a log of people come at the conference. For instance, I met a person who is working at Deepmind. I am keeping in touch with him and asking about the International Internship. I also met a person who is working at NAVER CLOVA research team and could ask a lot of things about Internship and some materials to study GAN (Generative Adversarial Example).

Finding and talking with people that you want to know actively would give you a lot of opportunities to get a nice chance in your life. (Like co-work with someone, fancy internship, etc.)

3   Conclusion

However, there also is a limitation attending the conference as an undergraduate student. While talking with other people, it is hard to 'share' your experience because most undergraduates have less research experience and less knowledge than other participants, most of all Master or Ph.D. students. And this means you need to speak and ask the question more actively for networking. Mom people will love your passion about that.

Discussing their works with passion was a very wonderful and nice situation that I've seen. I hope I can present my research to other people in a few years later, not only asking questions to presenters! I strongly recommend attending the conference even you are undergraduate if you have a chance to attend it!

4   Some interesting talks

4.1   Tutorial: Adversarial Robustness: Theory and Practice

In this talk, they explained the concept of adversarial attack and how we can improve the robustness of neural nets against these attacks. They introduced some mathematical backgrounds to optimize the equation related to adversarial robustness. Since they started their talk from very basic concept, most people can easily understand the purpose that they want to say. Plus, they also introduced a website that includes more explanation about their saying and some codes related to their concept. Here is the link that they gave. (http://adversarial-ml-tutorial.org/)

4.2   Adversarially Robust Generalization Requires More Data

This paper introduces the reason why adversarial optimization for MNIST dataset is successful but for CIFAR-10 is unsuccessful. The paper prove that at least $sqrtK$ times more samples are required for adversarial optimization, where K is the dimension of datas. There are a lot of people at this poster since the title was attractive, and they did not explained their mathematical proof in too much detail even thought they used very difficult mathematical concepts. Rather, they tried to say what they contributed to adversarial optimization. Here is the link for more information. Paper Link Slides Link

4.3   Neural Ordinary Differential Equation

This paper introduces new method to new family of deep neural network models. Most neural nets have used discrete layers to make a neural nets. Their parameter is optimized by using backpropogation. However, created a continuous neural net using dynamic system in neural nets. They made a ODE with initial condition, and they computed the output of neural net using ODE solver. They allowed train the neural nets with larger model efficiently, and also using this family allows us to use the memory efficient since we don't have to save the gradient at each block. This paper got the best paper in this conference since solving neural nets using ODE is a completely new concept in deep learning, and they also explained their paper with poster very well to make people attractive to their paper. Paper Link

4.4   Additional

There are a few more paper that I got interested in like neural net compression, how human recognition resembles/not resembles neural nets. If you want to hear about these information, please email me! Maybe I can give you a link and the title of the paper with brief explanation that I understood.