

Lecture IV

How to Participate in an International Conference

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声明

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Benefic of Conference Participation

- ▶ There are several benefits to participate in some International conferences:
 - ▶ You can publish a paper to increase your academic impact
 - ▶ You can expand your social networking by knowing more people
 - ▶ You can discuss with people doing similar researches to exchange idea
 - ▶ You can go to some place that you have never been there before
- ▶ Depending on your academic prestige or your passion, you might be invited to organize or involved to help in the conference. Otherwise, you have to register for the conference:
 - ▶ To simply register as an audience
 - ▶ To register with accepted papers

Roles of the Organizing Bodies

- If you want to help, it would be better to figure out where suits you. But you would probably skip these slides if you find your role in the organizing committee, ☺:

Organizing Committee (Role-oriented)

General (Co-)Chair
Program (Co-)Chair
Technical (Co-)Chair
Plenary (Co-)Chair
Special Session (Co-)Chair
Tutorial (Co-)Chair
Workshop (Co-)Chair
Publication (Co-)Chair

Award (Co-)Chair
Publicity (Co-)Chair
Competition (Co-)Chair
Finance (Co-)Chair
Industry Liaison (Co-)Chair
Local Arrangement
(Co)Chair

Student Volunteers (Task-oriented)

-Publicity
-Registration
-On-site
-Events Tracking

Roles of the Organizing Bodies

- Even as a volunteer, there are still lots of technical considerations you can give a hand if you have the knowledge and skills better:

Conference	
Conference Organizers	Conference Call for Abstract/Papers
Location/Venue	Budget
Sponsorships	Technical Program
Accommodation	Industry Outreach
Social Events	Networking
Area attractions	Visa

Symposium/ Special session / Tutorial	
Organizing committee	Organisers
Topic/Statistics	Community
Reviewers pool	Commitment

Types of Conference

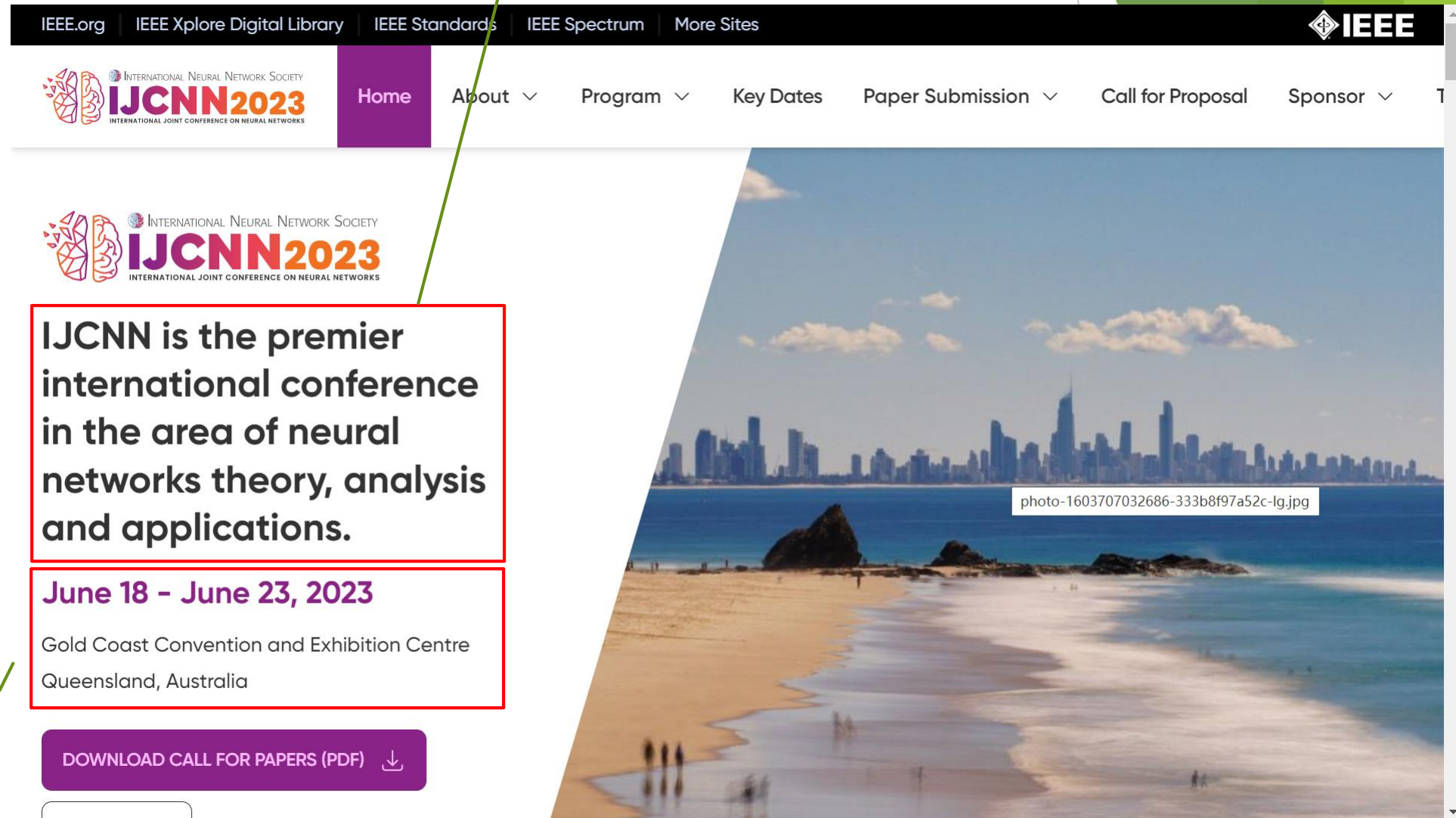
- ▶ There are generally two types of conference. One category is conferences affiliated with some international organizations, for example, conferences under IEEE. Usually, for these conferences, there are dedicated people to help or advise on organizing. The conferences are well-recognized and easy to draw sponsorship from industries. Also streamlined publishing is available since most organizations are associated with publishing services, which means if you have a paper accepted, it can be published in well-known journals and later indexed by SCI or EI, etc.
- ▶ Another type of conference is with no link to any International associations. These conferences can be flexible, however, usually require more experience and strong organizing abilities of the committees. For example, you do hope the committee members have some relations with some publishers, which means your accepted paper will not go somewhere silent in anonymous conference proceedings. There is also a risk for some conference which runs in a too much commercialized manner and incurs negative critics from scholars which ruins the original academic purpose.

Understand the Conference

Aim or scope of the conference

- ▶ We introduce the elements of a conference by dissecting the website of IJCNN 2023. Usually when you decide to go to a conference, it is where you look for the information.

Time and Location



The screenshot shows the official website for the International Joint Conference on Neural Networks (IJCNN) 2023. The header includes the IEEE logo and navigation links: IEEE.org, IEEE Xplore Digital Library, IEEE Standards, IEEE Spectrum, and More Sites. The main navigation bar features links for Home, About, Program, Key Dates, Paper Submission, Call for Proposal, and Sponsor. The main content area displays the IJCNN 2023 logo and a large banner image of a beach with the Chicago skyline in the background. A red box highlights the conference's aim and scope, and another red box highlights the dates and location. A purple button at the bottom offers a download for the call for papers PDF.

IEEE.org | IEEE Xplore Digital Library | IEEE Standards | IEEE Spectrum | More Sites

INTERNATIONAL NEURAL NETWORK SOCIETY
IJCNN2023
INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS

Home About Program Key Dates Paper Submission Call for Proposal Sponsor

INTERNATIONAL NEURAL NETWORK SOCIETY
IJCNN2023
INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS

IJCNN is the premier international conference in the area of neural networks theory, analysis and applications.

June 18 - June 23, 2023

Gold Coast Convention and Exhibition Centre
Queensland, Australia

DOWNLOAD CALL FOR PAPERS (PDF) ↓

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Paper Submission

- Usually you will directly jump to the key dates page to have an estimate whether you can meet the deadline or not by taking your current schedule into account.

The deadline is the most concern for most authors

We cannot say it is always, but it is quite common for conference to extend the deadline for submission up to two weeks.

INTERNATIONAL NEURAL NETWORK SOCIETY
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INTERNATIONAL JOINT CONFERENCE ON NEURAL NETWORKS

Home About Program **Key Dates** Paper Submission Call for Proposal Sponsor

2022-11-15
Special Session Proposals Deadline

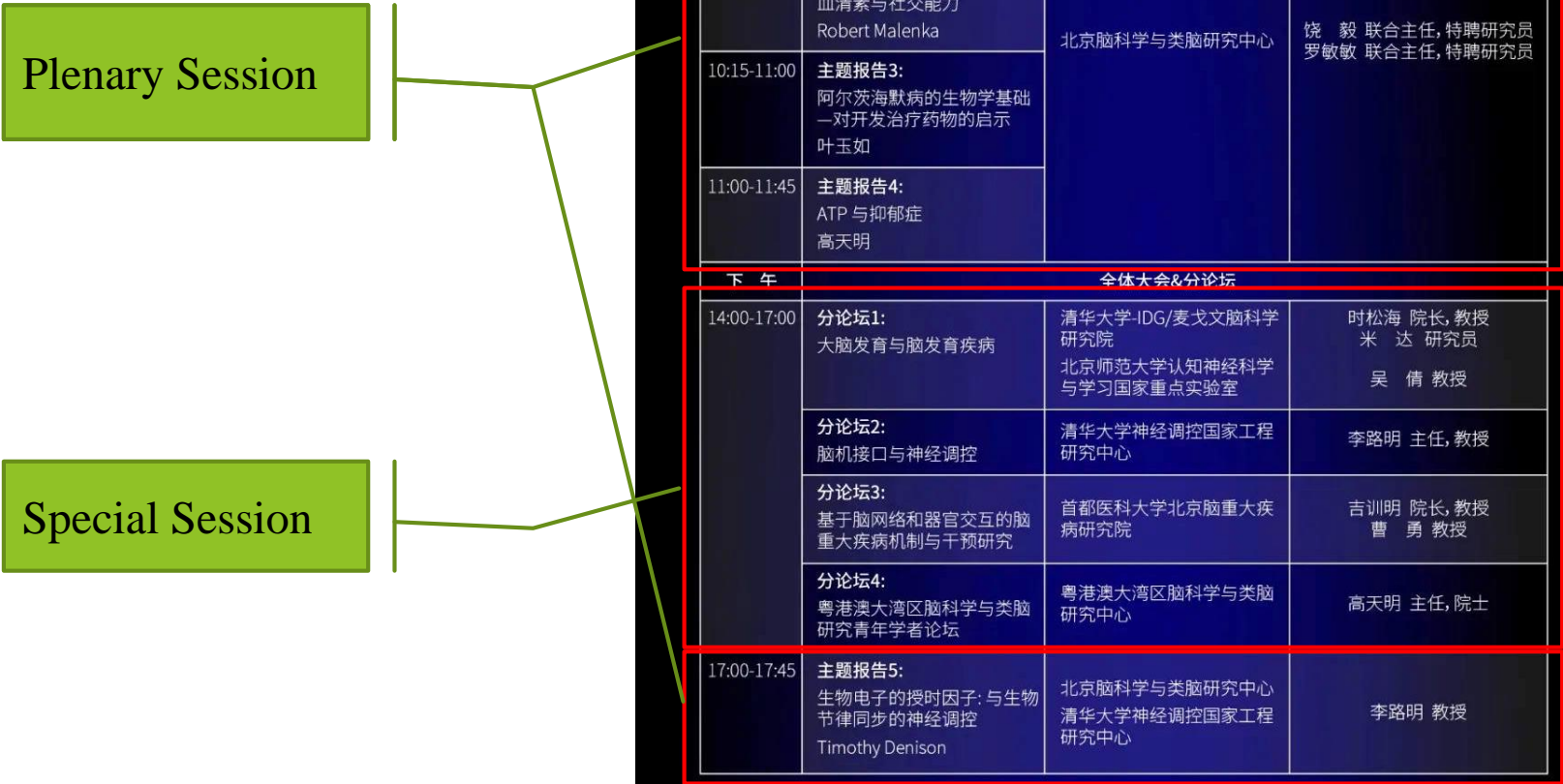
2022-12-15
Tutorial, Workshop, and Competition Proposals Deadline

2023-03-07
Paper Submission Deadline

2023-03-31
Paper Decision Notification

Conference Schedule

► The conference schedule of IJCNN 2023 seems still to be pending. Generally, for a conference, there are can be various programs, for example, plenary session, special session, workshop, competition, etc. Usually, the plenary session and special session are two obligatory sessions for most conference while other programs are optional. We will see an example:



Paper Submission

- Usually you will submit a paper for the plenary consideration. However, in some circumstance, you might want to submit to a special session. In this case, check the respective sections carefully.

Contain instructions for paper submission.



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SUBMIT A PAPER >

Special Sessions

Paper Submissions
Information

Submission Guidelines

Please read the following paper submission guidelines before submitting your papers:

1. Each paper should not reveal author's identities (double-blind review process).

Double-Blind Reviewing

The review process for IJCNN 2023 will be double-blind, i.e. reviewers will not know the authors' identity (and vice versa). Authors should ensure their anonymity in the submitted papers. In brief:

Paper Submission

- ▶ Usually you can submit a paper as long as meeting the deadline. However, some conference requires you to **submit an abstract first** for an initial screening to decide on your upcoming full paper. So don't skip this step in order to guarantee your later submission valid.
- ▶ Some conference accepts manuscript written in MS Word. However, some conference only accepts the LaTeX format. Check the website for further information, especially using LaTeX is out of your expertise.
- ▶ Due to the overwhelming papers targeting a specific conference, to relieve the burden, the committee might require you to be volunteer to review some paper as a premise for your participation in the conference. You can neglect it however if you would like to take the task, it will not be that difficult.

Paper Review

- ▶ If you would like to review some paper, usually the keywords you texted when you submitted your paper will be used as a clue to bid the paper best match your expertise. Just find you some time and assess others' work in a neutral and integral way, that's it. An example shows as right, of course the questions and the fields to fill can be quite different.
- ▶ BTW, if you are required to review a paper, you will definitely be given the credential information of the review management system.

Select Your Role : Reviewer ▾

Edit Review

Paper ID 4

Paper Title Chlorofluorocarbons and You

REVIEW QUESTIONS

1. While performing my duties as a reviewer (including writing reviews and participating in discussions), I have and will continue to abide by the xxxx code of conduct. * *(visible to other reviewer, visible to meta-reviewer)*

☐ I agree

2. Have you seen this submission online (e.g., arXiv, personal website, social media)? * *(visible to other reviewer, visible to meta-reviewer)*

☐ yes
☐ no

3. Have you previously reviewed or area chaired (a version of) this work for another archival venue? *(visible to other reviewer, visible to meta-reviewer)*

☐ yes
☐ no

4. Why is this paper good? * *(visible to author after notification, visible to other reviewer, visible to meta-reviewer)*

8000 characters left

Submit

Save Draft

Cancel

Paper Acceptance

- Once your paper is accepted, you will know the way of presenting your paper, for example, oral or poster.
- For your paper to be effectively published in the conference proceeding, you must present your paper, or someone on behalf you to present your paper in the required way. For oral paper, you can just prepare the PPT, however for poster, you have to make the poster to highlight your work.



Key Takeaways

- Goal-Oriented Active Learning (GORAL) can be **made practical** by **saving the massive model retraining costs** through influence function approximations.
- However, achieving the goal in GORAL doesn't necessarily **lead to a good AL data efficiency** (see Experiment #2).
- The **common practice** of directly using the current model prediction $P_\theta(y|x)$ to resolve the unknown label y in the utility **risks rendering it useless** (see Insight #1).

Goal-Oriented Active Learning (GORAL)

- The **end-goal** of AL: be smart about selecting x s.t. model performance \uparrow , labelling cost \downarrow .
- Define **GORAL** as AL which uses a **proxy goal function** $\tau(\theta)$ (the higher the better) to guide the selection, i.e.

$$\pi_{\text{goal}}(x; \theta) \triangleq \ell_y[\tau(\theta(x, y))] - \tau(\theta) \quad \theta(x, y): \text{retrained model after adding } (x, y) \text{ into } \mathcal{L}_{\text{train}} \text{ (note } y \text{ is hypothetical)}$$

- ℓ_y is an operator to resolve the unknown label y , e.g.
 - Expectation \mathbb{E}_y , according to $P_\theta(y|x)$ or simple **Average**
 - Minimization \min_y or Maximization \max_y
 - Oracle, i.e. setting y to the ground-truth (**an unrealistic ideal**)
- Possible goal functions $\tau(\theta)$ we consider include
 - Dev-set likelihood, i.e. $\tau_{\text{dev}}(\theta) \triangleq \sum_{(x,y) \in \mathcal{L}_{\text{dev}}} \log P_\theta(y|x)$
 - Negative prediction entropy, i.e. $\tau_{\text{ent}}(\theta) \triangleq -\sum_{x \in \mathcal{U}} H(P_\theta(y|x))$
 - Negative Fisher information, i.e. $\tau_{\text{fir}}(\theta) \triangleq -\sum_{x \in \mathcal{U}} \text{tr}(I(\theta|x))$
- A **fundamental computational problem** with GORAL: To compute the utilities for all x requires $|\mathcal{U}_{\text{pool}}| \times K$ times of **model retraining!** (K is the number of classes.)

Approximating GORAL with Influence Functions

- [Koh & Liang, ICML17] introduced **influence functions** into ML, and showed for $\hat{\theta} \triangleq \arg\min_{\theta} \frac{1}{n} \sum_{i=1}^n R(z_i; \theta)$ ($z = (x, y)$) and R being a **twice-differentiable** and **strictly convex** loss function, the **influence of an ϵ -weighted sample z** on the retrained model $\hat{\theta}_{\epsilon, z}$ can be approximated per 1st-order Taylor expansion,

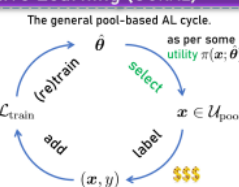
$$\left. \frac{\partial \hat{\theta}_{\epsilon, z}}{\partial \epsilon} \right|_{\epsilon=0} = - \underbrace{H_\theta^{-1}}_{\text{Hessian}} \underbrace{\nabla_\theta R(z; \hat{\theta})}_{\text{gradient}}$$

- Following the chain rule to extend it to the goal function above, $\tau(z; \hat{\theta}) \triangleq \frac{\partial \tau(\hat{\theta}_{\epsilon, z})}{\partial \epsilon} \bigg|_{\epsilon=0} = \frac{\partial \tau(\hat{\theta})}{\partial \theta} \bigg|_{\theta=\hat{\theta}} \cdot \frac{\partial \hat{\theta}_{\epsilon, z}}{\partial \epsilon} \bigg|_{\epsilon=0} = - \nabla_\theta^\top \tau(\hat{\theta}) H_\theta^{-1} \cdot \nabla_\theta R(z; \hat{\theta})$

we obtain the **approximate utility**, i.e.

$$\hat{\pi}_{\text{goal}}(x; \hat{\theta}) \triangleq \ell_y \left[\tau(\hat{\theta}) + \frac{1}{n} \tau(z; \hat{\theta}) \right] - \tau(\hat{\theta}) = \frac{1}{n} \ell_y [\tau(z; \hat{\theta})]$$

which is free from model retraining altogether.



Insight #1: On Using $\mathbb{E}_{y \sim P_\theta(y|x)}$ in the Utility

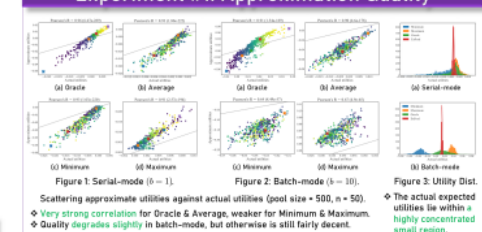
- When $R(z; \theta) = \Omega(\theta) - \log P_\theta(y|x)$, i.e. training with **regularized maximum likelihood**, the approximate expected utility becomes **a constant**, i.e. $\hat{\pi}_{\text{goal}}(x; \hat{\theta}) = \frac{1}{n} \mathbb{E}_y [\tau(z; \hat{\theta})] \equiv \text{const.}$
- This follows directly from $\mathbb{E}_y [\nabla_\theta \log P_\theta(y|x)] = 0$, and holds **regardless of the choice of the goal function**.
- Implication: the approximate utility becomes **useless**, yet the actual utility is both **expensive** and **highly susceptible to noises**.

Insight #2: On GORAL in Batch-Mode

- Batch-mode AL: **less greedy** and selecting **one batch** $X \triangleq \{x\}$ at a time, according to a **holistic** batch utility $\pi(X; \hat{\theta})$.
- Batch-mode GORAL $\pi_{\text{goal}}(X; \hat{\theta}) \triangleq \ell_Y[\tau(\hat{\theta}_Z)] - \tau(\hat{\theta})$ $\hat{\theta}_Z$: retrained model after adding $Z \triangleq \{(x, y)\}$ into $\mathcal{L}_{\text{train}}$
- Applying similar influence function approximations, we obtain $\hat{\pi}_{\text{goal}}(X; \hat{\theta}) \triangleq \frac{1}{n} \ell_Y [\tau(Z; \hat{\theta})]$ b : batch size $|X|$
- As it turns out, $\hat{\pi}_{\text{goal}}(X; \hat{\theta}) = \sum_{x \in X} \hat{\pi}_{\text{goal}}(x; \hat{\theta})$.
- Implications
 - Using **greedy selection** in batch-mode GORAL is **well justified!**
 - Huge reduction in computational cost!**

$$\underbrace{\binom{|\mathcal{U}_{\text{pool}}|}{b}}_{\# X} \times \underbrace{K^b}_{\# Y} \xrightarrow{\text{model retraining}} |\mathcal{U}_{\text{pool}}| \times K \xrightarrow{\text{gradient computation}}$$

Experiment #1: Approximation Quality



Experiment #2: What Makes a Good Goal?

- Benchmarking GORAL with **Logistic Regression** on the **100text** dataset ($K=26$).
- Dev-set likelihood τ_{dev} (4.a)
 - Only **Oracle** (inforc) outperforms baselines (uncertainty & random sampling).
 - Note it requires **additional** (dev-set) labels.
- Negative prediction entropy τ_{ent} (4.b)
 - Exhibits **almost identical** behaviour (**explained analytically** in the paper).
 - Best achieving the goal yields the **worst AL data efficiency** (see Oracle!)
- Negative Fisher information τ_{fir} (4.c)
 - Exhibits **almost identical** behaviour (**explained analytically** in the paper).
 - Best achieving the goal yields the **worst AL data efficiency** (see Oracle!)

Registration

- ▶ Usually after the paper acceptance notification, registration will open to welcome the attendees. It is strongly recommended to register online, especially you are going to another country to attend the meeting. Usually, you need the committee to issue you the invitation letter in order to get your visa.
- ▶ Only local people without paper acceptance might delay the registration to an on-site one, which is acceptable or not is decided by the committee.
- ▶ You can have others to be on behalf of you to present your paper, however, you or your coauthors must register and pay the fee for your paper. If you have any question about the payment and invoice, there should be someone to help you out.

Travelling

At last, best luck to everything!

- ▶ Attending a conference in another country can be easy or difficult. Not mention the time lag, sometimes if you cannot speak the local language, it might bring you some inconvenience. Usually the organizer will try to detail as many tips to help the attendees to feel at home.

