

### To do before starting:

- Join our [discord](#). This will enable you to find teammates and ask any of us on the Perforated AI team questions in advance.
- Check out the [open source repo](#), specifically the [API section](#). It would be good to familiarize yourself with what you'll be working with at the hackathon.
- Check out [this tutorial](#) on W&B Sweeps. Dendritic Optimization introduces a handful of additional hyperparameters. Coming into the hackathon you should already have optimized the hyperparameters for your initial project. By using W&B Sweeps you can be sure you're getting the most out of the new dendrite parameters.
- If you're interested, sign up for free access to the proprietary part of our code by registering [\[here\]](#); we'll send you the token soon after you register. This isn't required but will likely get you better outcomes

### Scoring rubric and project suggestions

1. **Project prevalence.** Projects with broader prevalence will be scored more favorably given the implications (i.e., economic impact, opportunities to scale to other use cases)
  - e.g., fewer points for improving a simple conv net on a barely-used dataset
  - e.g., more points for improving Qwen on a benchmark dataset
  - Suggestions:
    - Huggingface top [models](#) and [datasets](#)
    - PyTorch built-in [models](#) and [datasets](#)
    - [Waymo Datasets](#)
2. **Quality of the optimization.** Demonstrate sizable change between the 'without dendrites' version and the 'with dendrites' versions of your model.
  - e.g., error reduction percent
  - e.g., percent fewer parameters of final model without loss in accuracy
  - e.g., percent less data required to achieve equivalent accuracy
3. **Narrative clarity.** Bring your use case to life
  - e.g., a simple summary of the situation and the challenge pre-dendrites
  - e.g., clear synthesis of the output and findings
  - e.g., clear quantification of the impact within your test, and potential broader impact (e.g., lower inference costs, smaller hardware enabled)
4. **Optional bonus points.**
  - Take on a bigger challenge by integrating dendritic optimization into a new framework. We are currently set up for [Huggingface](#), [PyTorch Lightning](#), [PyTorch Geometric](#), and [PyTorch Tabular](#). If you get dendritic optimization working with other similar cases that'll get you bonus points. (note if you don't want any specific bonus points and are actually looking for an easier project doing a project within these frameworks using what we've already built is a great option for that)
    - Note, these projects are also harder. If all of your code is in one file adding Dendritic Optimization can be done in under an hour. If you have to dive into the depths of a library with custom trainers etc., it is more challenging.

- Options: [MMDetection](#) - [Ultralytics YOLO](#) - [MONAI](#) - [SAIL Models](#) - [TorchTune](#) - [Ray](#)
- Other framework adjacent options with added complexity: [NanoGPT](#), [Meta Map Anything](#), [Huggingface Distillation](#)
- Additions to your PR. If you find any bugs or optimizations that you submit in your PR in addition to your project to the examples folder that'll also get you bonus points.
- Connect your project to a business need within your case study. Describe how this model optimization unlocks use cases, hardware options, or data limited training.

## Submissions

- All submissions will require a short one page writeup matching other [case studies](#).
- If you are working on open source models and datasets, submissions must also include a PR to our github repo to allow us to reproduce your results.
- If you are applying this open source tech to a closed source project the submission will not require a PR to our github, but will require permission to formally include your company or lab in the case study to be shared.
- Bonus points will be given for a W&B sweep report like [this](#) showing the impact of dendrites over multiple hyperparameters tested.

## Hackathon Inception Rules

- The other hackathon must be included on a recognized forum such as [kaggle](#) or [devpost](#) and have at least 200 participants.
- If the timing does not overlap perfectly, being in the top 3 at the time our hackathon ends will qualify you as a winning project. If the hackathon does not do rankings like that your prize can still be awarded after our hackathon end date. We will continue to give away hackathon inception prizes for 2 months past our hackathons prizes announcement.
- Your project or team name must use the word “Perforated” such that it shows up on the leaderboard.
- Updated rules 1/22
  - **Your project PR must be accepted into our repo as an official submission and qualifying use case of the library**
    - It does not have to be the same project as you submitted for the original hackathon though. You can submit a new project at any time which must meet the same requirements to have the PR accepted.
  - We will give up to 25 of these
  - After the 2 month period, if 25 have not been claimed, we will give up to 10 for anyone who gets their work published in a qualifying peer reviewed journal.
    - Ask us specifically about the journal before submitting to be sure it qualifies
    - “Perforated” must be in the title of your paper.
- Updated Counts
  - Hackathon inception prizes left 24/25

## Previous Hackathon Results

- [BERT Compression by Skim AI Team](#)
- [Amino Acid Classification by Carnegie Mellon Team](#)
- [MobileNet Compression by Deloitte Team](#)

## Papers on Dendritic Optimization

- [Link in our Repo](#)

With any extra questions, reach out to our founder on [LinkedIn](#) or [Discord](#).

## Complete list of judges

- **Dr. Rorry Brenner**, Founder & CEO, Perforated AI
- **Erin Yanacek**, Perforated AI Co-Founder & COO; ex-McKinsey
- **Ralph Crewe**, Co-Founder & CCO, Perforated AI; Lead writer & producer, Practical Engineering
- **JJ MacLean**, Principal, Side Door Ventures
- **Arisa Chelsea Ueno**, Investor, DraperU Ventures
- **Mo Bakir**, AI Solutions Engineer, Weights & Biases
- **Anirudh Singh**, Director, CrowdStrike
- **Karthik Jayaprakash**, Senior member of technical staff, AMD
- **Dr. Prithvi Akella**, Principle Investigator, Siemens
- **Rakesh Pullayikodi**, Principle Engineer Software, Palo Alto Networks
- **Vyom Malhotra**, Senior Systems Engineer, NVIDIA
- **Samaresh Singh**, Principal Engineer, HP Inc.
- **Rahul Huilgol**, Sr SWE, AWS
- **Harry Kabodha**, Co-founder & CEO, Varosync, Inc.
- **Ayman Khaleq**, Co-founder & CTO, Varosync, Inc.
- **Asif Saiyed**, Data Architect, Delvoim
- **Mohammed Uddin**, Data Management Analyst, University of Florida
- **Deep Shah**, Chief Architect, Socratic AI