

Welcome!



UCSD SMASH & NSF HDR ML HACKATHON



*Hybrid species
discovery*



*Gravitational
wave detection*



*Climate event
identification*



Detecting anomalies in scientific data

UC San Diego

Dr. Melissa Quinnan

Inaugural UCSD SMASH Hackathon!



- This hackathon is hosted by the new UCSD SMASH initiative!
- UC San Diego Meetings between Astro/physics, SDSC, & HDSI
- Fosters interdisciplinary discussions and collaboration between UCSD/HDSI/SDSC research

NSF HDR ML Challenge

- Local iteration of the national NSF HDR ML Challenge:
Anomaly Detection in Scientific Datasets



The National Science Foundation (NSF) Harnessing the Data Revolution (HDR) Institutes are an integrated fabric of interrelated institutes that aim to accelerate discovery and innovation in multiple areas of data-intensive science and engineering.

- Goal of the challenge: successfully detect anomalies in your choice of 3 datasets:



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Objectives

1. Choose a dataset



2. Make a codabench submission of your model

3. Submit a google form with team information and description of your model

Prizes will be awarded for:

- The best performing model (most accurate at identifying anomalous events) according to the codabench ranking to one team from each challenge
- The best model (as scored by the judges) to one team from each challenge
- Fun surprise prizes!

Agenda

SATURDAY 11 JANUARY



09:00 → 09:20	Registration & Coffee	🕒 20m
09:20 → 13:00	Introduction Session: Welcome & Orientation	✎
09:20	Welcome Remarks Speaker: Melissa Quinnan (Univ. of California San Diego (US))	🕒 10m ✎
09:30	Project Introduction: Gravitational Wave Detection Speaker: Philip Coleman Harris (Massachusetts Inst. of Technology (US))	🕒 15m ✎
09:45	Project Introduction: Hybrid Species Discovery Speaker: Wei-Lun Chao (Ohio State University)	🕒 15m ✎
10:00	Project Introduction: Climate Event Identification Speaker: Prof. Aneesh Subramanian (University of Colorado Boulder)	🕒 15m ✎
10:15	Coffee Break	🕒 15m
10:30	Hands-on Tutorial: Practice notebook & submission Speakers: Elham Khoda (University of Washington (US)), Melissa Quinnan (Univ. of California San Diego (US))	🕒 45m ✎
11:15	Team Formation & Start Teams find each other and pick their challenges	🕒 1h 45m ✎
13:00 → 14:00	Lunch	🕒 1h
14:00 → 16:30	Hacking Time!: Day 1 Teams gather together to work on their challenge submissions, with experts nearby to consult	✎
14:00	Hacking Time!	🕒 1h 30m ✎
15:30	Day 1 Expert Consultation Wrap-Up Expert volunteers make their final rounds helping teams for the day	🕒 1h ✎
16:30 → 22:00	Nighttime Self-Organized Hacking Time Teams may wish to continue working on their challenges.	🕒 5h 30m ✎

Agenda

SUNDAY 12 JANUARY		
09:00 → 09:20	Day 2 Start & Coffee	🕒 20m
09:20 → 09:30	Day 2 Welcome Remarks	🕒 10m
09:30 → 15:00	Hacking Time!: Day 2 Teams gather together to work on their challenge submissions, with experts nearby to consult	
09:30	Morning Expert Consultation ¶ Expert volunteers make their rounds to check in with the teams progress	🕒 3h 30m
14:00	Hacking Home Stretch!	🕒 1h
13:00 → 14:00	Provided Lunch: Pizza Party!	🕒 1h
15:00 → 15:45	Prize Announcement & Team Presentations. Winning teams present their projects	🕒 45m
15:45 → 16:00	Closing Remarks	🕒 15m

Timeline

- UCSD Hackathon- submissions due by 3pm Sunday January 12
- National HDR Hackathon phase 1: January 31
- National HDR Hackathon phase 2: February 1

Refine your model after the weekend and win more prizes in the national hackathon!



A pool of 6000 USD and additional awards

Resources

- NRP Nautilus put together a jupyterhub with allocated GPU resources for you to use during the hackathon!
- <https://smash-hackathon.nrp-nautilus.io/>



- Expert volunteers will be available in FAH for help during hackathon weekend
- Look for the **yellow shirts**

Important Links

- Hackathon Website: <https://indi.to/ucsdhack>
- National Challenge Website: <https://www.nsfhdr.org/mlchallenge>
- NRP Nautilus JupyterHub link: <https://smash-hackathon.nrp-nautilus.io/>
- Final model submission form: <https://forms.gle/yRSZ9RPDQDZyurNx7>
- Hackathon discord: <https://discord.gg/WCUn5SWE>

Happy Hacking!!



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