# 2023 NCHC Open Hackathon

## Final Day – 7th Dec

WIFI: NCHC-Guest

- Username: guestadmin-hc889999
- Password : nrsk5784

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國家高速網路與計算中心
National Center for High-performance Computing

OPEN HACKATHONS
OpenACC

# Platforms for Discovery

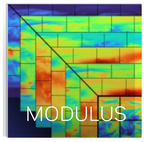
**AI APPLICATION FRAMEWORK**

Edge Processing

Speech AI

Customer Service

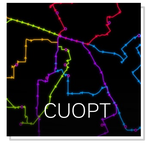
Recommenders



Physics ML

Video

Video Analytics



Logistics

Conversational AI

Robotics

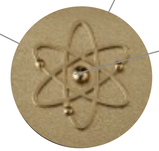
Autonomous Vehicles

Cyber-security

Healthcare

Customer Service

**PLATFORMS**


NVIDIA HPC


NVIDIA AI


NVIDIA Omniverse

**ACCELERATION LIBRARIES**

cuNumeric | CV-CUDA | cuQuantum | Parabricks | Sionna | JetPack

RAPIDS | Spark | cuDNN | cuGraph | TensorRT | Triton | DeepStream | Flare

CUDA Quantum | DOCA | Magnum IO | Aerial | cuFFTMp

4M+ Developers

450+ SDKs/Models

**CLOUD-TO-EDGE DATACENTER-TO-ROBOTIC SYSTEMS**

RTX | DGX | HGX | EGX | OVX | Super POD | IGX

**3 CHIPS**


GPU


CPU

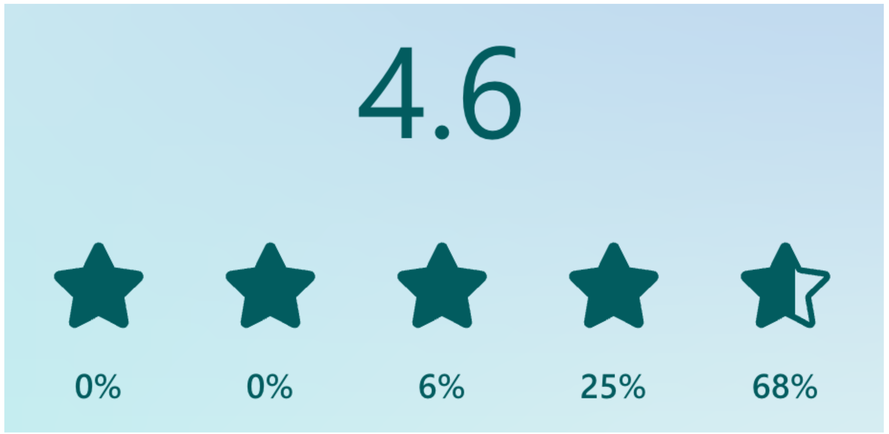

DPU

NVIDIA

# 30th Nov Feedback Survey

https://forms.office.com/Pages/AnalysisPage.aspx?AnalyzerToken=gyv02e9wMVWuF4bWrJpGoGdHXXB43ByX&id=FT0IQ3NywUC32znv2czBei_v6Z7E3spMkukFqwqazeBUQjRCUEtHVjFRM1oxUFpTTVA4NFo3TEdKVCQlQCN0PWcu

- "很好的活動，很高興能有機會接觸到平常較少接觸到的資訊"
- "提供很多GPU的優化資訊，很實用"
- "Thanks"
- "Can this competition help us discover better industry-academia collaboration opportunities?"
- "Great"
- "Mentor 太強了 學到非常多東西 以及Nnsight分析的方法"
- "Good"
- "That's so cool to see so many acceleration projects across different disciplines in single event."




44 feedbacks

- 壓力好大 但學到很多，遺憾的是有時候沒辦法跟上mentor的要求
- 覺得每週報告一次，時間間隔稍近，且許多人應是更早就開始進行研究，建議報告活動可更早開始，間隔2-3週報告一次之類的

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Team Roster

# Group Blue (Host by Jay)

# Group Green (Host by CK)

| | | | |
|---|---|---|---|
| **Host** | Jay | **Floating Mentor** | Bharat, Aswin |
| **Host** | CK | **Marketing** | Jinny |
| **Infra Setup** | Kuan-Ting | **Event logistics** | Apoorva |
| **Account Manager** | Vincent | **NCHC Contact Window** | Zhoujin Wu |

7 HPC teams across
- Quantum Algorithms
- DPU&Infra Security
- Compute Fliud Dynamic
- Climate&Weather
  MPAS Mesh, GFS, GVER

5 AI teams across
- Otoscopic Diagnostic
- Heartbeats Detection
- X-ray Image Correction
- Functional Encryption
- Large Language Model

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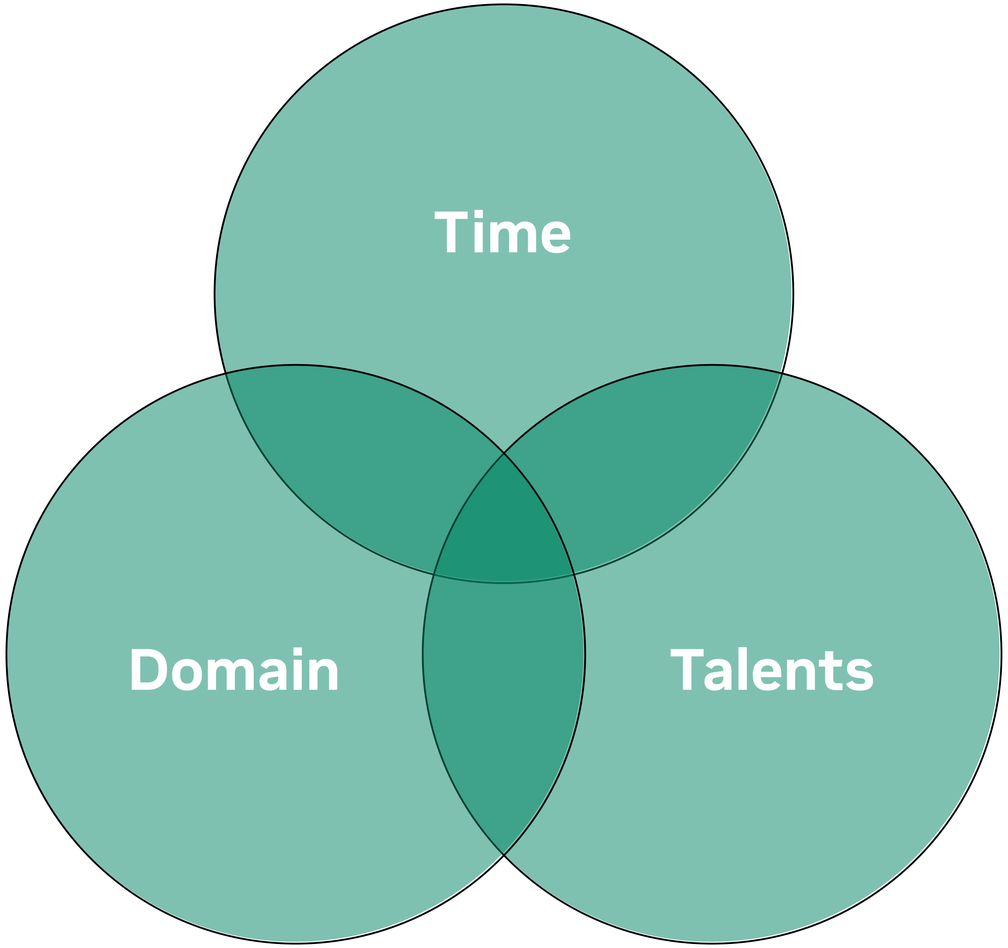
| Team ID | Team | Mentor | HOST |
|---|---|---|---|
| 1 | Schrödinger's cat | Reese<br>Yun-Yuan | CK |
| 2 | haofan2023 | Tian<br>Frank<br>Yun-Yuan | CK |
| 3 | NTHU-LSALAB | Erez Ferber<br>Sungta | CK |
| 4 | NTUST CFD Lab | Shijie<br>Kuan-Ting | Jay |
| 5 | CWA- mesh genration for MPAS model | Leo<br>Jay (Host) | Jay |
| 6 | CYCU BME | <br>Eason | CK |
| 7 | CWA_GVER | Ming<br>Kuan-Ting | Jay |
| 8 | WTMH | <br>Ken | CK |
| 9 | 氣象署-興大應數聯隊 (氣興聯隊) | Leo<br>Jay (Host) | Jay |
| 10 | YSS | Frank<br>Tian<br>CK (Host) | CK |
| 11 | TXM_AI_group | <br>Warren | Jay |
| 12 | NCHC Speedrunning team | Anthony<br>Cliff | Jay |

# It is not easy

Thanks Teams and Mentors

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# Agenda

| Welcome and Event Overview | | 10:00~10:25 | |
|---|---|---|---|
| **AM Session** | | **10:25-12:00** | Speedup |
| Team-1 | Schrödinger's cat | 10:30 | E2E: 126.7X<br>PEffiiciency: 126.7X |
| Team-2 | haofan2023 | 10:45 | >cuQuantum: 1.6X<br>E2E: 5.5X |
| Team-4 | NTUST CFD Lab | 11:00 | Baseline: 3.35X<br>Optimized: 16.68X<br>PEffiiciency: 46.4X |
| Team-9 | 氣象署-興大應數聯隊<br>(氣興聯隊) | 11:15 | Function-wise: 4.6X<br>E2E wo I/O, init: 1.8X |
| Team-7 | CWA_GVER | 11:30 | part-1: 44.0X<br>part-2: 30.1X<br>(wo I/O, single core) |
| Team-5 | CWA- mesh generation for MPAS model | 11:45 | Function-wise: 8X<br>Technical E2E: 2X<br>Doamin E2E: 12X |
| **Lunch Time** | | **12:00~13:25** | |
| **PM Session** | | **13:25-15:00** | Speedup |
| Team-3 | NTHU-LSALAB | 13:30 | DPU Save CPU 15%<br>Latency -> 4s |
| Team-6 | CYCU BME | 13:45 | Inference: 1.5X |
| Team-8 | WTMH | 14:00 | Functional-wise: 5X<br>E2E: TBD |
| Team-10 | YSS | 14:15 | Functional-wise: 2.1X |
| Team-11 | TXM_AI_group | 14:30 | Training: 3X |
| Team-12 | NCHC Speedrunning | 14:45 | Inference: 1.78X (V100)<br>A100, H100: TBD |
| **Wrap-up Session** | | **15:00~** | |

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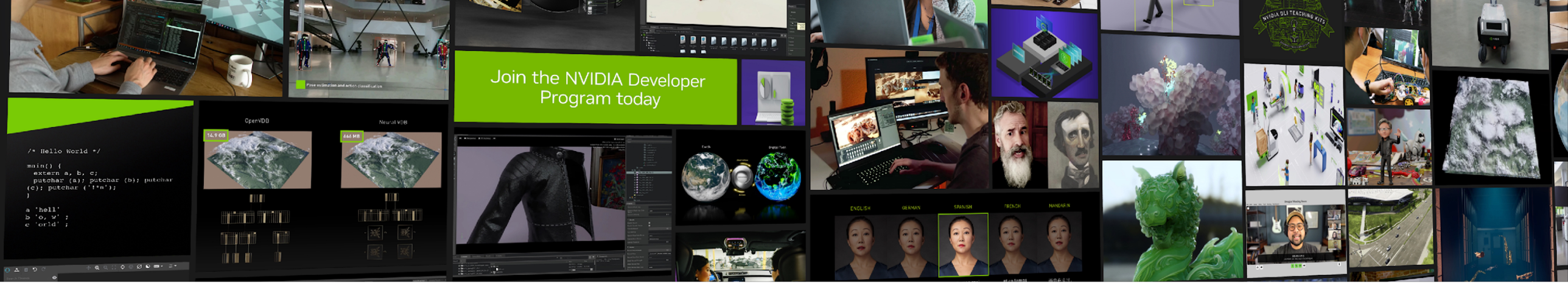
# PROMOTING YOUR WORK: AVAILABLE OPPORTUNITIES

- **Papers and Talks:** Please acknowledge the Open Hackathons program and OpenACC Organization in any planned or upcoming papers, presentations, or talks.

  "This work was completed in part at the [Event name], part of the Open Hackathons program. The authors would like to acknowledge OpenACC-Standard.org for their support."
- **Social Media Support:** Please feel free to promote your participation across your social media channels. Tag **@OpenACCorg** and **#OpenHackathons** and we are happy to amplify.
- **Blogs and Technical Write-ups**: Create a blog post or technical article that highlights the work being done and results achieved.
- **Quotes and Testimonials:** Highlight your quote or feedback on our channels (i.e. social, website, etc.).

***Please reach out to
Jinny Lin (jinnyl@nvidia.com) and Jay Chen (jaych@nvidia.com)
to discuss marketing options and opportunities.**

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## NVIDIA 開發者計畫

**Program Benefits:**

### Tools

- 550+ exclusive SDKs and models
- GPU-optimized software, model scripts, and containerized apps
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### Training

- Research papers, technical documentation, webinars, blogs, and news
- Technical training and certification opportunities
- 1,000s of technical sessions from industry events On-Demand

### Community

- NVIDIA developer forums
- Exclusive meetups, hackathons, and events

### Special Program (Present to Jan 2024)

- Join NVIDIA Developer program now, you will get one NVIDIA Training

### Join the Community

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# Claim your Free Self-Paced Course

## 立即加入 NVIDIA 開發者計畫

**現在申請加入 NVIDIA 開發者計畫，可"免費" 獲得一堂付費 DLI 自我安排進度訓練課程**

- Timeline: Present ~ Jan 2024.

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- **Expand** your skills with technical training and certification from DLI (Deep Learning Institute).
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**NVIDIA Inception Program**

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## Program Benefits:

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- Receive preferred pricing on a range of NVIDIA software and hardware
- Get free cloud credits from our CSP partners
- Access our massive collection of developer tools, pretrained models, and optimized software libraries to help guide your teams.

### Accelerate Your Startups' Growth

- Increase your brand awareness with co-marketing opportunities for social amplification, events, and other co-marketing activities.*
- Get exposure to hundreds of venture capital firms for potential funding opportunities and investor introductions.**

### Startups Ecosystem

- +15,000 startups worldwide
- $94B+ in cumulative funding
- 100+ countries represented

## Apply the Program

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# Final Day - Feedback Survey

https://forms.gle/UZXxKdsywvcxQNv59

## NCHC Open Hackathon Post Event Survey

Congratulations on your hard work. Please help us by answering this short survey about your experience. This survey should take 3 minutes or less.

jaych@nvidia.com Switch account

Not shared

Draft saved

* Indicates required question

What was your role at the event? *

- (•) Team Member
- ( ) Mentor
- ( ) Organizers

Next

Clear form

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Thank You!
Feedback Survey