

# Introduction of CubeSat Salon AI Bot



**Mengu Cho<sup>a,b\*</sup> and Abdulla Hil Kafi<sup>a</sup>**

<sup>a</sup> *Kyushu Institute of Technology*, <sup>b</sup> *Chiba Institute of Technology*

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UNISEC Global Virtual Meeting

# Mission assurance and CubeSat Salon

# UNISEC's Lean Satellite Mission Assurance Activities

- Joint activity with JAXA since 2020
- Collection of lessons learned
- Root cause analysis of mission failure
- Mission Assurance Handbook for the University-built Lean Satellite
- Information portal
- CubeSat Salon

Handbook download



# CubeSat Salon



- During the Mission Assurance (MA) activity of FY 2021, discussed the best way to assist university satellite MA and identified
  - "Assisting the mission definition phase in the early stage of the project is effective"
- Earlier than conceptual design phase
  - Frankly point out
    - Can you do it?
    - How do you make a satellite to achieve your mission
    - How are you going to make your satellite
  - Give advice
    - Perhaps, this is doable
    - Where to go to ask for a help
    - It is not doable

# CubeSat Salon

- Newcomers (university and companies) need helps
- Advices by external reviewers at the mission definition phase
  - Mission planning
  - Mission feasibility
  - Optimum satellite bus selection
  - System lifecycle planning
  - Introduction of helpers and collaborators
- Relaxed environment over a cup of coffee/tea, etc.
  - A very low barrier for knocking the door
  - *CubeSat Salon*
- **Started July 2024**
  - Joint activity by Kyushu Institute of Technology and JAXA
  - UNISEC as a secretary



# CubeSat Salon



- Keeping the door wide open
- Relaxed atmosphere over tea/coffee
- **All free**



At Nihonbashi  
(Walking distance from  
Tokyo station)

超小型人工衛星の  
すべてのこと  
私たちがサット承り

Doctor & Professor  
**CHO MENGU**  
筑波大学 宇宙工学研究科 教授  
宇宙工学研究科 教授  
宇宙工学研究科 教授

Doctor & Assistant Professor  
**YAMAZAKI MASAHIKO**  
筑波大学 宇宙工学研究科 准教授  
筑波大学 宇宙工学研究科 准教授

Doctor & Professor  
**SAKAMOTO HIRAKU**  
筑波大学 宇宙工学研究科 教授  
筑波大学 宇宙工学研究科 教授

**WELCOME TO**  
**CUBE-SAT SALON**  
キューブサットサロン

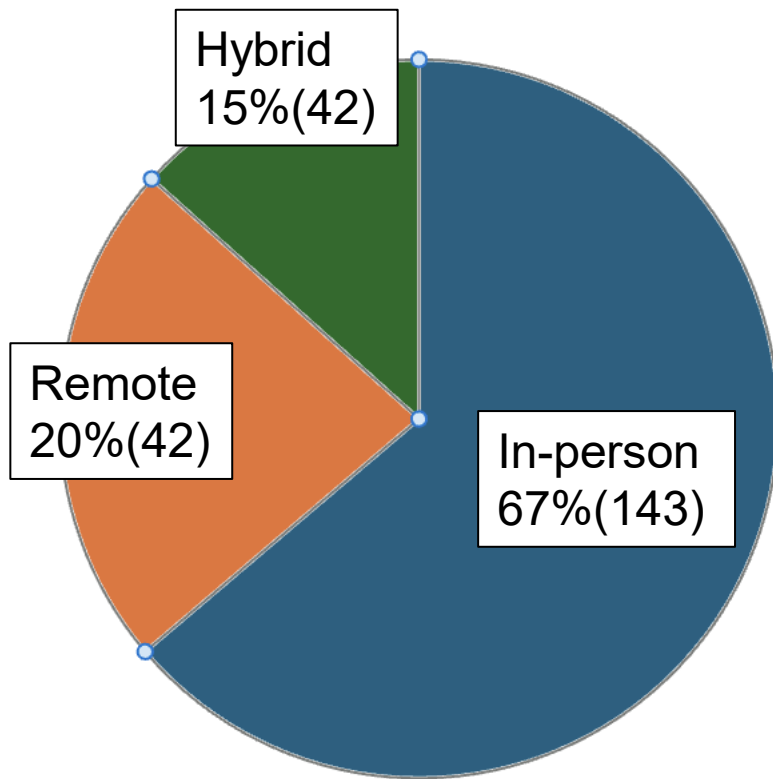
2024 JULY OPEN!

超小型衛星の開発・利用から、教育や研究、宇宙業界への参入・起業や投資まで。  
あなたの宇宙への夢を現実に変える場所、それが私たちのキューブサットサロンです。  
まずはお茶でも呑みながらゆっくりお話しませんか。場所は日本語、すべてのご相談は無料です。

キューブサットサロン 〒103-8523 東京都中央区日本橋本町 2-2-11 日本橋ライブ  
サイエンスビル10F ■ 完全予約制。WEB サイトよりアゲを取ってからお越しください。 <https://unisec.jp/cubesatsalon>

# Activity of FY 2024 & 2025

- In FY 2024 and 2025, total 212 sessions (1 hour/session)
- Repeater (multiple sessions) 57
- Company : 67% (143) 、Educational : 20% (42) 、Others : 15% (31)



| Contents                            | Sessions |
|-------------------------------------|----------|
| How to enter the space sector       | 118      |
| Project management                  | 50       |
| Component                           | 49       |
| CubeSat                             | 37       |
| Radiation                           | 20       |
| Human resource development          | 20       |
| Collaboration with others           | 18       |
| System Design                       | 18       |
| Funding                             | 16       |
| Space environment effect mitigation | 14       |

Basically, we can talk anything

# Category of consultation phase

| Phase              | Number |
|--------------------|--------|
| Mission definition | 155    |
| Conceptual design  | 17     |
| Testing            | 15     |
| Operation          | 5      |
| Project management | 10     |
| Detail design      | 4      |
| Manufacturing      | 4      |



# Overseas session

- Based on the success of FY2024 activity, the consultation service was extended to overseas entities
  - Collect more information about lessons learned
    - Get involved with each project from the early phase
- Consultation record will be anonymized and analyzed for the purpose of data collection toward lean satellite standard making
- Two slots (2 times a month)
  - 9:30-10:30
  - 16:30-17:30
- Attended by
  - Kyutech
  - JAXA
  - UNISEC



Mengu Cho



Hiroki Akagi



Reservation page

# Why are we doing this?

- We want to have more lean satellites (*a.k.a.* small satellites) being used for more advanced missions
  - Need to improve the mission success rate to gain the trust of possible stakeholders
  - Collect lessons learned, experiences, real needs and others from the community
    - *Leading to design guidelines and/or standards*
  - CubeSat Salon acts as the information hub

# CubeSat Salon AI Bot

*A domain-focused AI assistant that turns CubeSat Salon advisor knowledge into a scalable, multilingual first-contact consultation gateway.*

Url: <https://www.cubesatsalon.com/>

Instagram: <https://www.instagram.com/iamthesaloni/>

LinkedIn : <https://www.linkedin.com/company/iamthesaloni/>

Facebook: <https://www.facebook.com/iamthesaloni/>

# The Baymax Idea: Helpful, Friendly, Always There



# Why AI Bot?

- Want to collect more information
  - Understand the people's needs
- Overseas session started in 2025
  - Time limitation
- Introduction of 24/7/365 system to gather needs
  - Use an automated system based on AI
- Besides, AI can overcome the language barrier
- If we use AI, make something different from others, e.g. Chat GPT

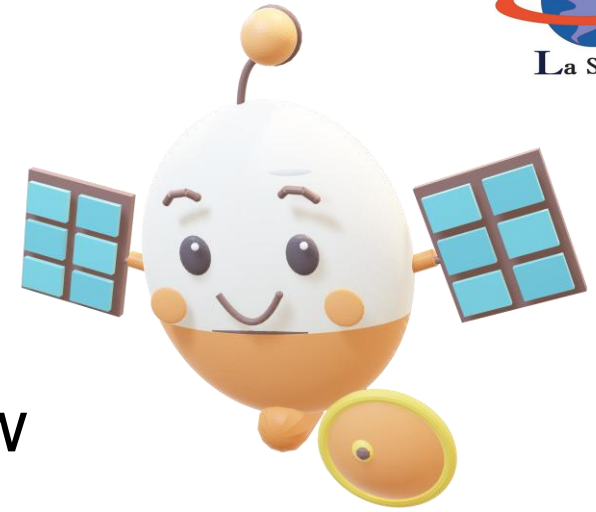


# SALONI

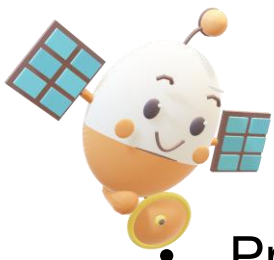
(Space Assistant for Learning, On-demand, Networked Intelligence)



# Basic principles

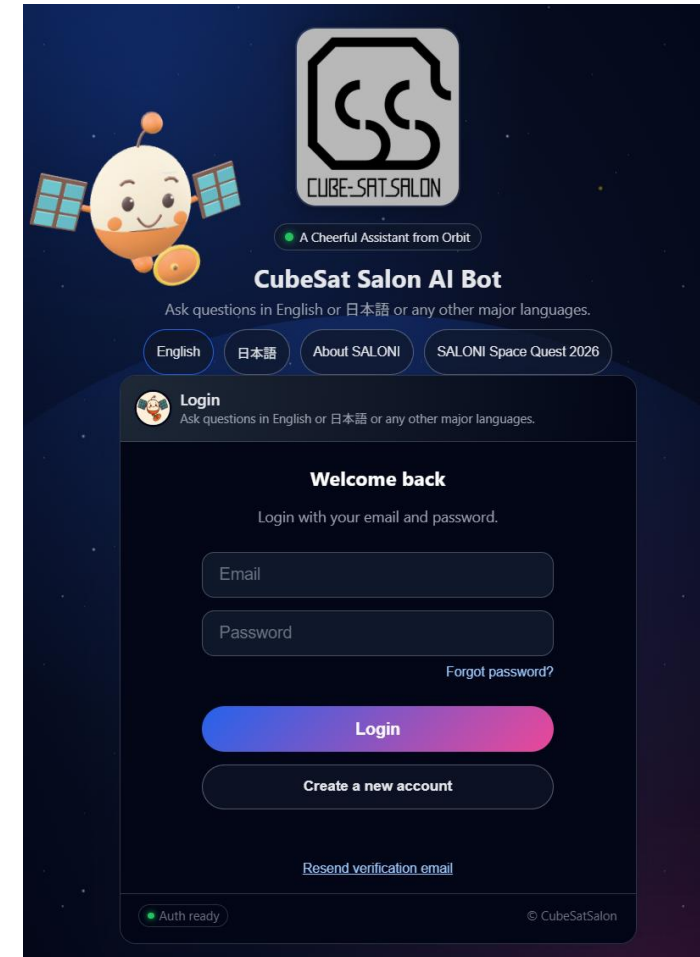


- Personalize
  - Use my own knowledge
  - Say “I don’t know” if I don’t know
  - Think like I think
  - Answer like I answer
- Collect information for further analysis
  - Analyze what people want to know after anonymization
- Introduce the real CubeSat Salon to the users
  - Real human is much better than AI



# Purpose

- Problem
  - unclear requirements
  - weak verification planning
  - schedule pressure
  - mission-loss risk
- SALONI Role
  - Instant guidance
  - Multilingual support
  - Pain-point collection
  - Advisor gateway



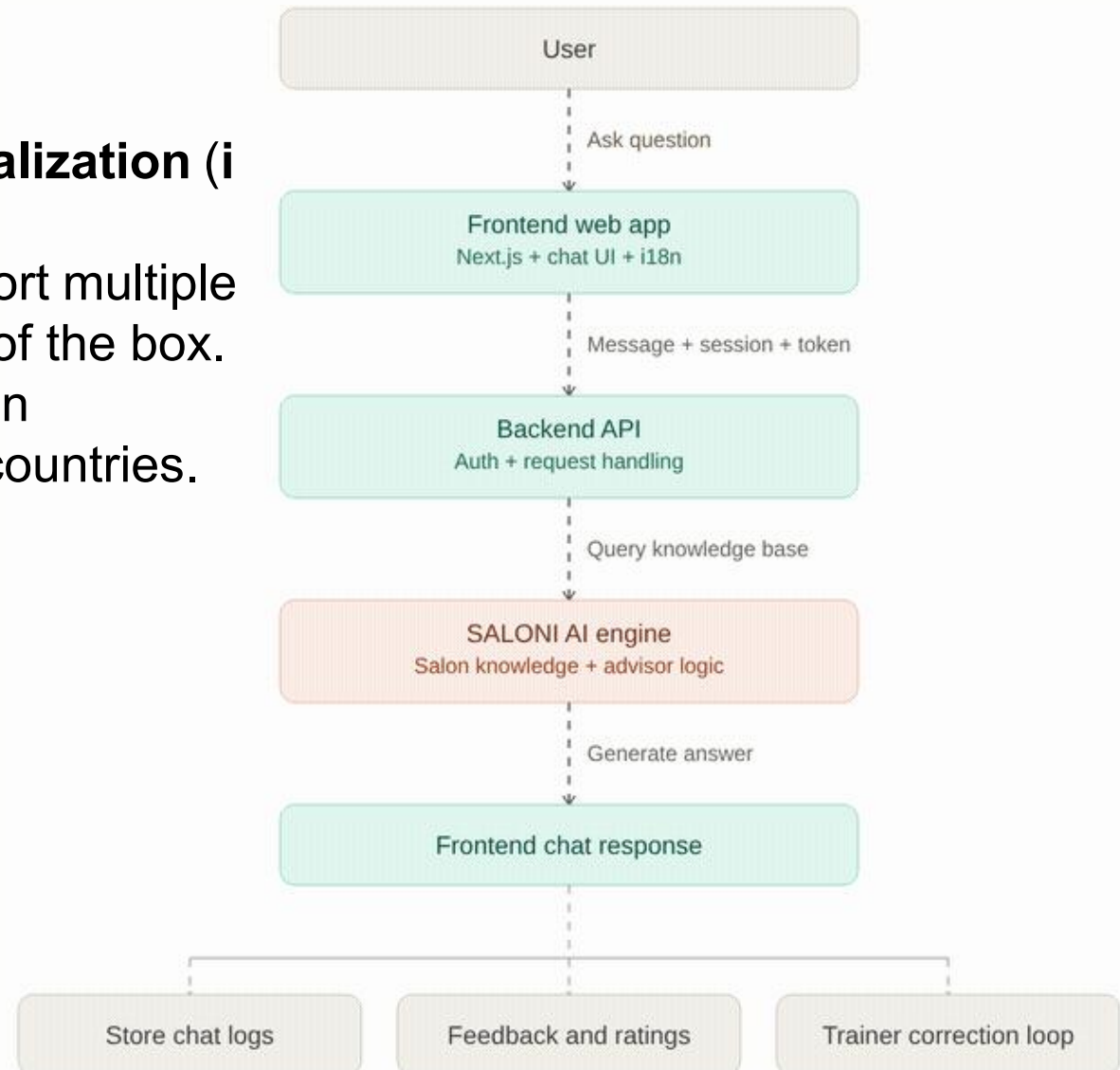
<https://www.cubesatsalon.com/>

*SALONI reduces time, language, and access barriers before consultation.*



# How SALONI works

- I18n : Short for **Internationalization** (i + **18** letters + **n**)
- Designing software to support multiple languages and regions out of the box.
- Saves time and money when launching products in new countries.



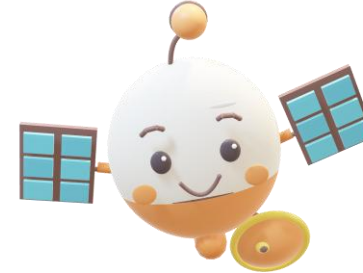
# How SALONI was trained

- SALONI is built on accumulated CubeSat Salon's advisors' knowledge.
- The knowledge sources include:
  - Lecture materials
  - Published papers
  - Conference presentations
  - Technical documents (e.g Mission Assurance Handbook)
  - Previous CubeSat Salon consultation records
  - Experience and judgment of CubeSat Salon advisors



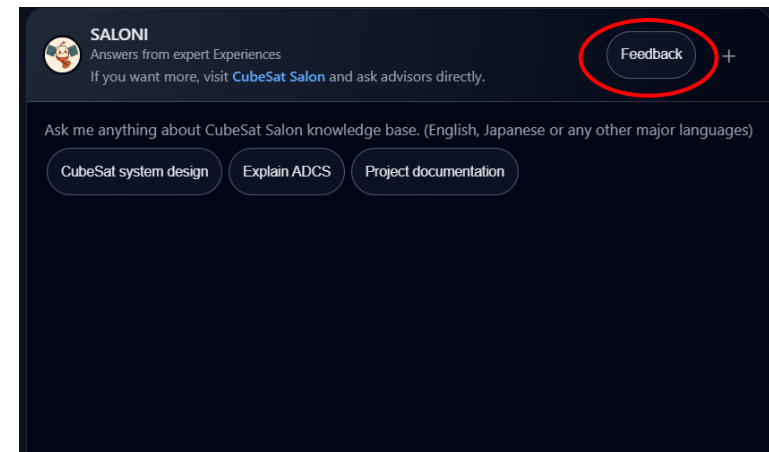
# How SALONI improves itself

- Collect
  - Questions
  - Answers
  - Ratings
  - Feedback
- Review
  - Trainer/advisor checks weak responses
- Improve
  - Update knowledge, prompts, and answer quality
- Result
  - More practical answers
  - Better CubeSat-specific guidance
  - Stronger support for future users



For beginners, start with a simple mission such as a 1U CubeSat with a basic sensor and use commercially available CubeSat platforms or modules to speed development. Following a systematic and standardized approach will greatly improve your project's success. Consult CubeSat design handbooks and consider collaborating with experienced organizations for detailed guidance.

Rate this answer



# SALONI User Account

# SALONI vs ChatGPT

| Use case                            | SALONI                                                                                                 | ChatGPT                                                                      |
|-------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| <b>How to start CubeSat Project</b> | Best for early-stage CubeSat consultation, mission planning, requirements, and advisor-style guidance. | Good for general explanations, templates, and brainstorming.                 |
| <b>Reference search</b>             | Useful for CubeSat Salon knowledge, advisor insights, and past consultation topics.                    | Better for broad literature exploration, keywords, and paper summaries.      |
| <b>Making a software</b>            | Limited to CubeSatSalon related guidance and basic software ideas.                                     | Strong for coding, debugging, UI design, scripts, and software architecture. |
| <b>Capacity Building</b>            | Strong for CubeSat project thinking, mission assurance, and preparing for consultation.                | Strong for general education, tutorials, quizzes, and multilingual learning. |

*SALONI is a **domain-specific CubeSat consultation gateway**.*



# SALONI vs ChatGPT

**SALONI**  
Answers from expert Experiences  
If you want more, visit [CubeSat Salon](#) and ask advisors directly.

Feedback +

How to start CubeSat Project?  
09:52 AM

To start a CubeSat project, follow these steps:

1. Learn the CubeSat concept and standards, including size, mass, and interfaces, to ensure compatibility with launch vehicles and other subsystems.
2. Clearly define your CubeSat's purpose and mission goals, such as education, technology demonstration, Earth observation, or communication.
3. Build a multidisciplinary team with expertise in electronics, mechanical design, software, and project management.
4. Design the subsystems like power, communication, computing, payload, and structure, leveraging existing standard modules when possible.
5. Develop prototypes to validate your designs and conduct functional and environmental testing (vibration, thermal, vacuum) to confirm readiness for launch and space conditions.
6. Manufacture the final flight unit and integrate all subsystems after successful testing.
7. Prepare necessary documentation, coordinate with launch providers, and set up ground station systems for post-launch operations and data reception.

For beginners, start with a simple mission such as a 1U CubeSat with a basic sensor and use commercially available CubeSat platforms or modules to speed development. Following a systematic and standardized approach will greatly improve your project's success. Consult CubeSat design handbooks and consider collaborating with experienced organizations for detailed guidance.

Rate this answer



09:53 AM Copy Correct

Connected Shift + Enter to send © CubeSatSalon

Type your message... Send





# Good question vs bad question

## Good technical question

### Specific context

"We are designing a 3U CubeSat for Earth imaging at 500 km SSO. Payload power is 3 W. What should we check for EPS sizing and verification?"

### Clear output

"Give me a checklist for early-phase mission requirements: mission objective, orbit, payload, power, data budget, verification plan."

### Engineering constraints

"Our ADCS pointing requirement is  $0.5^\circ$ . Which assumptions should we validate first before purchasing hardware?"

## weak question

### Too broad

"Design my satellite."

### No context

"What is the best ADCS?"

### Unsafe expectation

"Can I skip testing and still pass qualification?"

**Prompt formula:** Goal + mission context + constraints + desired output + current decision point

# SALONI Space Quest 2026

*A global outreach campaign to encourage meaningful CubeSat learning and consultation*

- **Campaign Period**

- **July 2026 – Mid-November 2026**

Results announced at the end of **November 2026**

- **Participants will:**

- Ask meaningful CubeSat questions
- Rate SALONI answers
- Submit feedback and use-case stories
- Share how SALONI helped their learning or mission idea

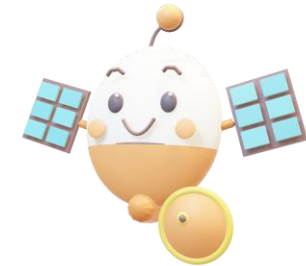
- **Campaign Goals**

- Increase global SALONI users
- Collect real CubeSat project questions
- Improve SALONI through feedback
- Support early-phase mission consultation

- **Recognition**

- First prize: **travel support to attend IWLS 2027 in Tokyo, Japan** including registration fee, airfare, and accommodation.

<https://lean-sat.org/9th-iwls/html/index.html>



# SALONI Space Quest 2026



| Activity                                             | Points             | Notes / Quality Control                                                                                                                                                                                                                                                                     |
|------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Create account and complete profile                  | 20                 | One-time points after verified registration. Profile should include basic user information such as name, country, profession, experience level, and sector clearly.                                                                                                                         |
| Ask a meaningful CubeSat or small-satellite question | 2 each             | Questions should be relevant to CubeSat/small-satellite learning, mission design, subsystems, testing, verification, risk, or project planning. Duplicate, empty, or very short questions do not count.                                                                                     |
| Use SALONI on 3 different days a month               | 20 for each 3 days | Count once per month. The more you use in different day the point will count as multiple of 3 usages                                                                                                                                                                                        |
| Rate SALONI answers                                  | 1 each             | Useful for answer-quality evaluation.<br>Upper Limit: 10 ratings/day.                                                                                                                                                                                                                       |
| Submit useful feedback                               | 15 each            | Feedback should include a concrete issue, missing topic, wrong answer, improvement idea, or user-experience suggestion. Generic feedback such as “good” or “bad” should not count.                                                                                                          |
| Refer a verified new user                            | 30 each            | Counts only when the invited user creates an account and uses SALONI meaningfully. You need to ask the new user to put your SALONI Username in the Referral option during the account creation.                                                                                             |
| Explore multiple mission topics                      | 30 bonus           | Bonus for covering different areas such as mission design, ADCS, EPS, COM, OBC, structure, testing, verification, operation, or risk management.                                                                                                                                            |
| Submit a public SALONI use-case story post           | 50                 | Participants will post publicly a short story explaining how SALONI helped their CubeSat idea, learning process, mission planning, or consultation preparation. Must include campaign hashtag (#SALONISpaceQuest2026, #AskSALONI, #CubeSatSalonAI) and submit the post link and screenshot. |
| Submit SALONI outreach post link                     | 20 each            | Counts for a public post introducing SALONI or SALONI Space Quest on LinkedIn, X, Facebook, university page, lab page, or student group. Verified by link or screenshot. Suggested cap: 2 posts during campaign.                                                                            |
| Present SALONI to a group                            | 60                 | For lab, class, club, university, student group, or workshop outreach. Participants should submit short proofs such as event title, date, photo, and slide.                                                                                                                                 |
| Submit final learning summary                        | 40                 | Participants submit a short summary of what they learned from SALONI and how it changed their CubeSat understanding or mission idea. This can help evaluate real learning impact.                                                                                                           |
| Best SALONI use-case story                           | Advisor reviewed   | Final best-story selection will be manually evaluated by CubeSat Salon advisors. Evaluation will consider clarity, technical relevance, learning value, impact, and meaningful SALONI usage. This is mandatory to secure first prize.                                                       |



For more details : <https://www.cubesatsalon.com/>

# CONCLUSION

- CubeSat Salon started in 2024
  - Free consultation service for everything related to space, e.g. CubeSat project, Entry to space sector, Capacity building, etc.
  - Service extended to overseas in 2025
- CubeSat Salon AI Bot “SALONI”
  - Offers consultation service 24/7/365
  - Can adapt almost any language
- Suggest to have a session with real human being at CubeSat Salon

