Global Responsible Artificial Intelligence League for Students

GRAILS

Competition Handbook

Version	Date	Author	Description
0.1	09-11-23	Pieter v B	Document initiation
1.0	14-12-23	Pieter v B	Adjustments for the 2024 edition
1.1	04-04-24	Pieter v B	Adjusted Responsible AI criteria

Contents

Introduction

We are in the midst of an AI bloom. Since the introduction of ChatGPT new applications of AI are published on a daily basis. Organizations struggle to keep up. What tools are trending, useful or still missing? Which tools embody public values, such as transparency, accountability or inclusiveness? The goal of the Global Responsible Artificial Intelligence League for Students is to find the answers to these questions. Together we will shape the future of AI.

Overview of the Competition

The Global Responsible AI League for Students (GRAILS) is an annual competition that invites students, researchers, and enthusiasts from around the world to develop artificial intelligence (AI) solutions with a focus on ethical, responsible, and sustainable impact. GRAILS seeks to inspire innovation in the field of AI, celebrate diverse approaches to responsible usage and give students an unique experience in global collaboration.

Objectives and Goals

The primary objectives of GRAILS is to:

- Pioneer the development of AI technologies and applications that are beneficial for society and adhere to ethical standards.
- Promote education and awareness of responsible AI practices.
- Provide a platform for emerging talents to showcase their abilities and contribute to the field of AI.
- Facilitate interdisciplinary cooperation and knowledge exchange within the AI community.

The goals of the competition are to:

- Challenge participants to think critically about the societal impacts of AI.
- Recognize and reward innovative ideas that prioritize ethical considerations in AI development.
- Build a global community committed to the advancement of responsible AI.

Importance of Responsible AI

AI has the potential to drive significant progress across various domains. However, this power comes with the responsibility to ensure that AI systems are developed and deployed in a manner that respects human rights, societal values, and environmental sustainability.

Next to SDGs and Human Rights, GRAILS emphasizes the importance of:

- Transparency in AI algorithms and data usage.
- Fairness and inclusivity in AI outcomes.
- Accountability for AI decision-making processes.
- Security and privacy in AI systems.
- Multi-disciplinarity and multi-stakeholder engagement to address complex ethical challenges.

GRAILS envisions a future where AI is developed with a conscientious approach, ensuring technology serves ecology and humanity in positive and equitable ways.

Competition Structure

The competition is structured into various stages, from initial registration and proposal submission to development and final presentations. Throughout these stages, in future editions, participating teams will have the opportunity to attend workshops, receive mentorship, and engage in community activities. In 2024 we will start out small with a light-weight approach.

Community and Collaboration

GRAILS is more than a competition; it is a growing community of responsible AI practitioners. Participants are incentivized to engage with one another, share insights, and build lasting connections that extend beyond the competition.

Eligibility and Team Composition

This chapter describes the eligibility criteria and required team composition

Eligibility Criteria

GRAILS is open to teams composed of individuals who meet the following criteria:

- **Students:** Currently enrolled in an accredited undergraduate or graduate program.
- **Academics and Researchers**: Affiliated with a recognized academic or research institution can advise teams.
- **Independent Innovators**: Individuals or groups working independently of an institution, provided they adhere to the competition's ethical standards and open-source requirements.

All participants must agree to the GRAILS Code of Conduct and the Participant Agreement to be eligible for participation.

Team Competition

- **Maximum Team Size:** Each team is allowed a maximum of twelve (12) members. This ensures manageable team dynamics and equitable distribution of work.
- **Multidisciplinary Teams:** To encourage a holistic approach to AI development, teams are encouraged to include members from diverse academic backgrounds, such as computer science, engineering, social sciences, law, and ethics.
- **Faculty Advisors:** Teams, especially those from academic institutions, are encouraged to have a faculty advisor. The advisor's role is to provide guidance and ensure the team's adherence to the competition's academic standards.

Diversity and Inclusion

GRAILS is committed to promoting diversity and inclusion within its community. Teams are encouraged to include members from various demographics, including but not limited to different genders, ethnicities, nationalities, and abilities.

Registration of Team Members

All team members must be registered for the competition through the official GRAILS registration process. Changes to team composition after the registration deadline are subject to approval by the GRAILS organizers.

Faculty Advisor Registration

Faculty advisors must register using the same process as team members. They must provide their contact information and declare their commitment to guiding their team responsibly, ensuring a safe and inclusive environment.

Responsibilities of Team Members

Each team member is expected to contribute significantly to the project. While roles may differ, the workload should be evenly distributed to ensure a collaborative effort.

Responsibilities of Team Leaders

Each team must designate a Team Leader who will be responsible for:

- Serving as the primary point of contact between the GRAILS organizers and the team.
- Ensuring that the team adheres to the competition schedule and deadlines.
- Overseeing the project's development and submission.

Change of Team Composition

If a change in team composition is necessary, the Team Leader must submit a formal request to the GRAILS organizers.

Disqualification

Failure to adhere to the eligibility and team composition rules may result in disqualification from the competition. It is the responsibility of the Team Leader to ensure compliance with these rules.

Registration

Registration Process

Registration for GRAILS is a structured process designed to capture all necessary information for team participation. The process is as follows:

- **Online Registration Form:** Teams must complete an online registration form providing team details, including member names, contact information, and affiliations.
- **Acceptance of Terms**: During registration, teams must agree to the competition's terms and conditions, the Participant Agreement, and the Code of Conduct.
- **Consent Forms Submission**: Teams are required to submit signed data use and media release consent forms for all team members.
- **Confirmation of Registration**: Once a team's registration form and consent forms are received and processed, the team will receive an official confirmation email.

Registration Deadline

The registration deadline for the inaugural GRAILS edition is **March 1st 2024**. Late registrations may not be accepted, but exceptional circumstances will be considered on a case-by-case basis.

Required Information

To complete the registration, teams must provide the following information:

- Full names of all team members and faculty advisor.
- Contact details, including email addresses.
- A brief summary of the team's proposed project or area of focus.
- Any special requirements or accommodations the team may need.

Registration Fee

There is no registration fee for the inaugural edition of GRAILS. However, teams are responsible for any costs associated with the development and presentation of their projects.

Confirmation of Participation

Teams will receive a confirmation of participation, which includes:

- An official team number for identification purposes.
- Access to the GRAILS resources and online environments.
- Details on upcoming events hosted by the GRAILS.

Withdrawal from the Competition

If a team wishes to withdraw from the competition, the Team Leader must notify the GRAILS organizers in writing as soon as possible.

Privacy and Data Protection

All personal data collected during the registration process will be handled in accordance with the GRAILS' privacy policy. Teams can rest assured that their information will be used strictly for competition-related purposes and protected against unauthorized access.

Competition Tracks and Themes

Overview of Tracks

GRAILS is structured into several distinct tracks that address various sectors where AI can be applied. Each track is designed to inspire innovative solutions to real-world problems while considering the ethical implications of AI in their relevant contexts.

Description of Tracks

GRAILS features the following tracks, each aligned with key areas of AI development and application:

- **AI x Design**: This track focuses on the integration of AI in the design process, enhancing creativity and functionality in digital and physical spaces.
- **AI x Health**: Teams in this track will work on AI solutions that improve health outcomes, patient care, and the overall efficiency of health systems.
- **AI x Logistics**: This track challenges participants to optimize supply chains, transportation, and distribution networks using AI.
- **AI x Business**: Here, the emphasis is on AI's role in transforming business practices, from management to customer relations and market analysis.
- **AI x Environment:** Participants are encouraged to develop AI applications that support environmental sustainability and address climate change challenges.
- **AI x Social Good**: This track is dedicated to projects that utilize AI for social welfare, including education, social justice, and humanitarian aid.
- **AI x Education**: Investigating AI's potential to personalize learning, automate assessment, and manage educational resources.
- **AI x Law**: Looking at how AI can be applied in legal analytics, case prediction, and legal service delivery.
- **AI x Manufacturing**: Exploring the integration of AI in smart manufacturing, quality control, and process optimization.
- **AI x Agriculture**: Dedicated to the intersection of AI with sustainable farming, crop management, and food security.
- **AI x ICT**: This track is about AI applications for software engineering, development and sustainable IT.

Project Track Selection

Participants must ensure their project aligns with the objectives of the chosen track. The project should address a specific problem, propose a novel AI-based solution, and consider the potential impact.

Interdisciplinarity

While teams will register under a specific track, an interdisciplinary approach is highly encouraged. Combining knowledge from different fields can lead to more robust and innovative AI solutions.

Changing Tracks

If a team decides to change their selected track, they must submit a formal request. Approval will be at the discretion of the GRAILS organizers.

Project Requirements

Scope and Nature of the Projects

GRAILS welcomes a diverse array of projects that demonstrate innovative and responsible applications of AI. Projects should be focused on creating positive societal impact while addressing ethical considerations inherent in AI development.

Technical Guidelines

- Innovation: Projects must introduce a novel approach or solution to the chosen problem area within the selected track.
- Implementation: The AI solution should be technically sound, feasible, and show potential for real-world application.
- Reproducibility: Solutions should be reproducible by others using the documentation and resources provided by the team.

Ethical Guidelines

- Transparency: Projects must disclose the methodologies, data sources, and algorithms used.
- Fairness: Solutions should address and aim to mitigate biases that could lead to unfair outcomes.
- Accountability: Teams must demonstrate how their projects ensure accountability in decision-making processes.
- Privacy and Security: Solutions must respect user privacy and include measures to protect data security.
- Sustainability: Teams must address the environmental impact of their projects.

Documentation

- Clear and Comprehensive: Project documentation should clearly explain the challenge, the AI solution, and the expected impact.
- Open Source Requirement: All code and resources must be submitted under an open source license to promote collaboration and transparency.
- Creative Commons for Non-Code Materials: All documentation, images, and other non-code materials must be submitted under a Creative Commons license.
- Demonstration Video: A video presentation is required to demonstrate the project and its impact visually. This should be concise and informative, not exceeding 5 minutes.

Submission

Projects must be submitted via the final submission form on the GRAILS website. We highly encourage using online platforms for documentation and reporting.

Language

All submissions, including written documentation and video presentations, must be at least in English to ensure accessibility to an international panel of judges.

Adherence to Timeline

Submissions must adhere to the deadlines specified in the competition timeline. Late submissions may result in penalties or disqualification.

Judging Criteria and Process

Introduction

GRAILS employs a comprehensive judging process to evaluate the merits of each project fairly and accurately. This chapter outlines the criteria and process used by our panel of expert judges.

Judging Panel Composition

- Expertise: Judges are selected based on their expertise in AI, ethics, industry-specific knowledge, and experience in interdisciplinary fields.
- Diversity: The panel reflects diversity in geography, gender, and professional background to ensure a broad perspective in the evaluation process.

Judging Criteria

- Technical Execution (25 Points): Complexity, innovation, and practical implementation of the AI application.
- Ethical Consideration (25 Points): How the project addresses ethical concerns in AI, including the involvement of stakeholders.
- Impact and Application (20 Points): The potential for real-world application and the societal impact of the project.
- Innovation and Creativity (10 Points): Originality of the problem-solving approach and creativity in design and execution.
- Presentation (10 Points): Clarity and effectiveness of the project presentation, including the demonstration video.
- Documentation and Methodology (10 Points): Quality and thoroughness of the project documentation and adherence to open source and Creative Commons guidelines.

Scoring System

- Point Allocation: Judges will allocate points to each project based on the criteria above, with a maximum score of 100 points.
- Bonus Points: Judges may award up to 10 bonus points for exceptional work that advances the field of responsible AI or demonstrates excellent work on ethics.

Judging Process

- Initial Review: Judges will conduct an initial review of all submitted materials to ensure compliance with the GRAILS guidelines.
- Scoring: Each judge will score the projects independently. Each project is judged by at least three judges.
- Deliberation: Judges will convene to discuss the projects and come to a consensus on the final scores and potential award recipients.

- Feedback: Constructive feedback will be provided to each team after the competition, highlighting strengths and areas for improvement.

Tie-Breaking

In the event of a tie, the judges will re-evaluate the tied projects based on a set of tie-breaking criteria, which focus on:

- Depth of Ethical Consideration: How deeply the project has integrated ethical considerations into its design.
- Scalability and Sustainability: The project's potential for scalability and long-term sustainability.

Announcement of Results

The winners will be announced at the GRAILS award ceremony. All decisions made by the judges are final.

Post-Competition Review

Judges are encouraged to participate in a post-competition review to reflect on the judging process, discuss potential improvements, and prepare for the next iteration of the GRAILS.

Timeline

Important Dates and Deadlines

March 1: Registration Deadline

- Last day for teams to submit their registration forms and consent documents.

March 8: Confirmation of Teams

- Official confirmation and announcement of registered teams.

March 22: Submission of Project Outline

- Teams submit a brief outline of their project concept.

April 5: Kickoff Event

- Virtual opening ceremony and detailed briefing on competition rules, and judging criteria.

May 17: Submission of Documentation and Video Presentation

- Teams submit their documentation, and video.

May 24: Finals

- Live presentations to the judges and wider audience.
- Networking opportunities with other teams and industry professionals.
- Awards ceremony and closing remarks.

May 31: Post-Competition Survey Distribution

- Surveys distributed to all participants to gather feedback on the competition experience.

Code of Conduct

Purpose

GRAILS is dedicated to providing a harassment-free, inclusive, and collaborative environment for all participants, judges, advisors, organizers, publics and staff. We aim to empower everyone to contribute fully to creating a responsible future for AI. This Code of Conduct outlines our expectations for participant behavior as well as the consequences for unacceptable behavior.

Expected Behavior

- **Respectful Communication:** Use welcoming and inclusive language. Be considerate in speech and actions, and actively seek to acknowledge and respect the diversity of our community.
- **Professionalism:** Conduct yourself in a professional manner. Your actions should contribute positively to the experience of all participants.
- **Collaboration over Competition:** While this is a competition, fostering a collaborative environment is key. Share knowledge and help your peers when you can.
- **Ethical Conduct:** Uphold the principles of ethical behavior in AI, including honesty, fairness, and responsibility.
- **Open Source Engagement:** Encourage open exchange of ideas and the freedom to build upon the work of others as outlined in the competition's open source requirements.

Unacceptable Behavior

- **Harassment:** Harassment of any kind will not be tolerated. This includes offensive verbal comments related to gender, age, sexual orientation, disability, physical appearance, body size, race, or religion.
- **Trolling and Insults:** Deliberately disruptive or inflammatory comments are not welcome.
- **Plagiarism:** Submitting the work of others as your own violates the ethical standards of this competition.
- **Breach of Privacy**: Publishing or sharing private information, such as physical or electronic addresses, without explicit permission is prohibited.
- **Other Unethical Conduct:** This includes any other behaviors that undermine the spirit of ethical AI and the integrity of the competition.

Consequences of Unacceptable Behavior

Unacceptable behavior will not be tolerated. Anyone asked to stop any harassing behavior is expected to comply immediately. If a participant engages in unacceptable behavior, the competition organizers may take any action they

deem appropriate, including warning the offender, expulsion from the competition, or legal action.

Reporting Guidelines

If you are the subject of, or witness to, unacceptable behavior, or have any other concerns, please report it by contacting the organizers at ai@hr.nl. All complaints will be reviewed and investigated promptly and fairly.

Scope

This Code of Conduct applies to all participants of the competition, including during judging, workshops, and any online forums or social media connected to the competition.

Documentation Requirements

Projects must be documented online. While teams are free to determine the structure and layout, the following information is recommended:

Home Page

- Introduction to the project and team.
- Navigation links to different sections.

Project Overview

- Abstract: A concise summary detailing the problem, solution, and impact.
- Goals and Objectives: Specific aims of the project.

Research and Background

- Problem Statement: Detailed description of the issue being tackled.
- Literature Review: Summary of existing research, with hyperlinks to sources.

Ethics and Responsibility

- Ethical Consideration Statement: An account of how the project adheres to responsible AI principles.

Technical Documentation

- Methodology: Description of the project's approach and methods.
- Implementation: Detailed account of implementation, including code snippets and explanations.
- Results: Presentation of outcomes, including graphs, charts, and narrative explanation.
- Future Work: Suggestions for future research directions and project improvements.

Licensing and Contribution

- Licensing: Explanation of open source and Creative Commons licenses applied to the project.
- Contribution Guidelines: How others can contribute to the project.

Team and Acknowledgments

- Team Members: Profiles and roles within the team.
- Acknowledgments: Recognition of mentors, advisors, and any external support.

Appendices

- Additional supporting materials, data sets, or resources.

Reflections

- Team Reflection: Insights gained, challenges faced, and experiences during the competition.

Version Control

- Commit regularly with clear commit messages to document the evolution of the project.
- Use branches for major changes and merge requests for review.

Collaboration and Interaction

- Use issue tracking to manage tasks and bugs.
- Document all team discussions related to project development in issues or merge requests to maintain a clear history of decisions.

Submission Instructions

- Ensure the website is publicly accessible by the submission deadline.
- Provide a clear index or table of contents for easy navigation.

Participant Agreement

I. Agreement to Participate

By signing this agreement, I, [Participant's Full Name], on behalf of my team, [Team Name], hereby agree to the terms and conditions set forth by the Global Responsible Artificial Intelligence League for Students organizers for participation in the competition. I affirm that I have the authority to bind my team to these terms.

II. Originality and Ownership

I attest that all work submitted by my team is original, and my team holds ownership of the intellectual property (IP) or has rights to all materials and content used in our submission. No part of our submission is encumbered by any IP claims by third parties.

III. Requirement for Open Source and Creative Commons

I understand that in the spirit of fostering an open and collaborative environment, all materials submitted to GRAILS, including but not limited to code, designs, and documentation, must be made available under an appropriate open source license for software (such as the GNU General Public License, Apache License, MIT License, etc.) and under a Creative Commons license for all other types of work. This ensures that submissions are accessible for use, adaptation, and distribution by others under the same or compatible licenses.

IV. Compliance with Competition Rules

I agree to comply with all competition rules as outlined in the official rulebook provided by the organizers. I acknowledge that failure to comply with these rules may result in disqualification from the competition or other penalties as deemed appropriate by the organizers.

V. Representation and Warranties

I represent and warrant that:

- My team's submission will not infringe upon the intellectual property rights, privacy rights, or any other legal rights of any third party.
- My team's submission will not contain any libelous, defamatory, or otherwise unlawful material.
- My team will disclose any third-party contributions or materials included in our submission.

VI. Use of Submissions

I grant the GRAILS organizers the right to use, display, and demonstrate our submission in materials related to the promotion and execution of the competition. This includes, but is not limited to, presentations, website content, promotional videos, and educational materials.

VII. Data Protection and Privacy

I agree to adhere to all applicable data protection and privacy laws when developing our project and handling any data, particularly personal data that may be used or generated as part of our project.

VIII. Acknowledgement of Risk

I acknowledge that participation in the competition involves certain risks, including but not limited to the risk of injury from working on the project and the risk of damage to personal property. I accept these risks as part of participation.

IX. Indemnification

I agree to indemnify and hold harmless the GRAILS organizers, affiliates, officers, agents, and other partners from any claim or demand, made by any third party due to or arising out of my team's actions, our submission, our violation of the competition rules, or our violation of any rights of another.

X. Agreement to Terms

I have read and understood the terms of this Participant Agreement, and agree to be bound by them. I acknowledge that this agreement constitutes the entire agreement between my team and the GRAILS organizers, superseding any prior agreements between us regarding the competition.

Participant's Signature: _____

Date: _____

For teams with participants under the age of 18:

Parent/Guardian Name: _____

Parent/Guardian Signature: _____

Date: _____

Judging Rubric

Technical Execution (25 Points)

- AI Application Complexity and Innovation (10 points): Complexity, novelty, and innovation of the AI model or algorithm.
- Technical Implementation (10 points): Quality and efficiency of the code, scalability, and use of technology.
- AI Application Performance (5 points): Accuracy, reliability, and performance metrics of the AI solution.

Ethical Consideration (25 points)

- Assessment of ethical aspects (10 points): how well the team has identified ethical aspects of the project
- Mitigation strategy (10 points): efforts to address and mitigate the identified ethical aspects
- Stakeholder engagement (5 points): efforts to involve relevant stakeholders in the assessment and formulation of the strategy

Impact and Application (20 Points)

- Problem Significance (10 points): Relevance and significance of the problem being addressed.
- Solution Effectiveness (10 points): Potential impact and practical applicability of the AI solution.

Innovation and Creativity (10 Points)

- Originality (5 points): Originality of the approach to problem-solving with AI.
- Creativity (5 points): Creativity in the design and approach to the AI solution.

Presentation (10 Points)

- Clarity (5 points): How clearly the team communicates their ideas and the details of their project.
- Engagement (5 points): Ability to engage the audience and judges, and respond effectively to questions.

Documentation and Methodology (10 Points)

- Completeness (5 points): Completeness and thoroughness of the project documentation.
- Methodology (5 points): Clarity and appropriateness of the methodology used in the project.

Total: 100 Points

Bonus Points (up to 10 Extra Points)

- Interdisciplinary Approach (5 points): Use of interdisciplinary methods and perspectives.
- Community and Social Engagement (5 points): How the project engages with or impacts the community or broader social issues.

Teams will be evaluated based on the above criteria, with a total possible score of 100 points, not including bonus points. The rubric is designed to balance technical prowess with the importance of ethical considerations and real-world impact. Judges are encouraged to provide feedback for each section to help teams understand their strengths and areas for improvement.

Prizes and Awards

Teams can win the following awards:

Grand Winner

- The best overall project

Best Presentation Award

- Recognizing the team that delivers the most compelling and clear presentation of their AI solution.

Best Fundamental AI Advance

- Honoring the team that achieves a breakthrough in AI theory or fundamental application.

Best AI Model

- Given to the team with the most innovative and effective AI model or algorithm.

Best Documentation

- Awarded to the team providing the most comprehensive and clear documentation of their AI project.

Ethical Innovation Award

- For the team that best incorporates ethical considerations into their AI solution.

Most Collaborative Team Award

- Recognizing the team that exemplifies exceptional teamwork and interdisciplinary collaboration.

Community Impact Award

- Given to the team whose AI project has the most potential for positive social impact.

Most Sustainable Solution Award

- For the team that presents an AI solution with the best sustainability practices.

Best Use of AI for Accessibility

- Awarded to the team that utilizes AI to improve accessibility for individuals with disabilities.

GRAILS Community Award

- For the team that receive the highest number of votes from their peers.

Best AI x … track award

- Awarded to the best team in the track

Runner up awards

- For Grand Winner and Best AI x … track award, the teams on the second place get the runner up award

Final Event

The final event consists of one day:

Team Presentations and Social Event

Morning Session

- Opening Remarks: Brief welcome and overview of the day's schedule.
- Team Presentations (Round 1): Scheduled presentations by all teams to the panel of judges. Each team is given a set time slot for their presentation and Q&A.

Lunch Break

- Catered lunch for all participants, judges, and organizers.

Afternoon Session

- Team Presentations (Round 2): Continuation of presentations by remaining teams.
- Judges' Deliberation: Judging completed

Awards Ceremony

- Announcement of Winners: The winners of each category, including special awards, are announced and celebrated.
- Prize Distribution: Presentation of awards and prizes to the winning teams.
- Closing Remarks: Final thoughts and acknowledgments from the organizers.

Social Event

- Celebration

FAQ