TechLauncher Project

***Physics in the Browser***

Team Charter

Semester 1 2023

**Version 1.1.1**

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**Revision History**

| **Date** | **Version** | **Overview** | **Author** |
| --- | --- | --- | --- |
| 02/03/2023 | 1.0.0 | Initial Revision | Shuyuan HE |
| 04/03/2023 | 1.1.0 | Formatted & Fixed | Jingqi DOU |
| 06/03/2023 | 1.1.1 | Meeting Dates changed | Shuyuan HE |
| 08/03/2023 | 1.1.2 | Meeting Dates corrected | Justin TIEU |
| 15/03/2023 | 1.2.0 | Added milestones/deliverables and reformatted | Justin TIEU |
| 28/03/2023 | 1.2.1 | Added usage of user story map and agile to tooling | Justin TIEU |
| 05/04/2023 | 1.3.0 | Added instruction about Code Standard | Bo ZHANG |

# Team names and contact

| **Name** | **Primary Contact** |
| --- | --- |
| Justin TIEU (spokesperson) | [u7280302@anu.edu.au](mailto:u7280302@anu.edu.au) |
| Zichen ZHANG (spokesperson) | [u7376167@anu.edu.au](mailto:u7376167@anu.edu.au) |
| Hong WANG | [u6535557@anu.edu.au](mailto:u6535557@anu.edu.au) |
| Chenzhu LI | [u7171958@anu.edu.au](mailto:u7171958@anu.edu.au) |
| Bo ZHANG | [u7275896@anu.edu.au](mailto:u7275896@anu.edu.au) |
| Shuyuan HE | [u7355023@anu.edu.au](mailto:u7355023@anu.edu.au) |
| Jingqi DOU | [u7381573@anu.edu.au](mailto:u7381573@anu.edu.au) |
| Dan MACKINLAY (CLIENT) | [Dan.MacKinlay@data61.csiro.au](mailto:Dan.MacKinlay@data61.csiro.au) |

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# Member Skills

| **Name** | **Skills** |
| --- | --- |
| Justin TIEU | C, C#, JavaScript, python, OpenGL |
| Zichen ZHANG | Java, Python, C#, Flask |
| Hong WANG | Python, Java, JavaScript, HTML, Docker |
| Chenzhu LI | JavaScript, Vue, C#, PHP |
| Bo ZHANG | C/C++, Java, JavaScript, Kotlin, Python, Native App |
| Shuyuan HE | Java, Python, UI/UX design, C/C++ |
| Jingqi DOU | React, Vue, Java, Swift, JavaScript, TypeScript, Figma |

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# Overview

This is the team charter of “Physics in the browser for the people”, an Australian National University TechLauncher project in Semester 1, 2023. The team charter outlines the project objective, team member information, and guidelines of the project. Team Charter will be updated regularly.

# Project Objectives

The objective of the project is to implement an interactive web application that implements and deploy a real-time visualization of physics simulation on the client end. The web application will innovatively access and execute the machine-learning model engine and illustrate an interactive animation based on neural-network physics simulations.

By engaging in the open-source project, the team will build a bridge between the cutting-edge neural physics machine learning model and the general public. The user-friendly website will provide easy access to everyone who is interested in Physics. The deliverable will not only contribute to the public good science, in particular in fluid dynamics, but also make a real difference in the field of artificial intelligence.

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# Milestones and deliverables

| **Week** | **Techlauncher** | **Milestone (to be completed before end of week)** |
| --- | --- | --- |
| 4 |  | Planning and setup |
| 5 |  |
| 6 | **Audit 2** | Implementation |
| TB1 |  |
| TB2 |  |
| 7 |  |
| 8 |  |
| 9 |  |
| 10 | **Audit 3** | Polish |
| 11 |  |
| 12 | **Showcase** |

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## Milestones

| **Planning and setup**   * User stories * Website designs * Simulator pitches * Website implementation   **Implementation**   * Graphics framework * Physics engine * First simulation implementation | **Polish**   * Analytics and data collection * Additional simulation implementation |
| --- | --- |

More details on milestones and deliverables can be found in the [relevant documentation](https://docs.google.com/document/u/0/d/1JyigHBqZAHVamFinZVRBlv-yM5W1nFf05r0i3R18kqU/edit).

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# Team roles

The project is to be split into three parts,

* Website team
* Physics team
* Simulator team

Each team is responsible for overseeing the completion and quality of the relevant deliverables the team is associated with. However, it is expected that those in one team actively contribute to work in other teams.

More information about teams can be found in the [teams allocation document](https://docs.google.com/document/u/0/d/15XZC6pt_7B5PXxsyPgP0GAjutSWOS183DnkT3dJcLzs/edit).

# Team Meetings

| **Meeting Type** | **Time** | **Attendee** |
| --- | --- | --- |
| Tutorial | Every Wednesday 8am to 10 am (except during mid-break) | All team members (students), the shadow team and the tutor |
| Client Meeting | Every Thursday 3pm to 5pm | The spokespeople, the client and optionally other team members |
| Team Meeting | Every Sunday 3pm to 5pm (might vary) | All team members (students) |

Notes: meeting frequency may increase or decrease if needed (e. g. client meeting canceled due to the client’s tight schedule, more than one team meeting within a week because of the coming deadline)

# Performance expectations

· All team members should conduct professionally and show respect to each other and all other stakeholders. There is zero tolerance to misconduct. Violation of the code of conduct will result in warning before escalation to the tutor and/or the course convenor.

· According to the workload expectation of this course, all team members should spend approximately 10 hours per week on this project. The workload includes all meetings, lectures, tutorial sessions and the tasks assigned.

· All team members will be assigned tasks regularly and are expected to complete them in time.

· All team members should attend all weekly meetings to discuss project progress, identify challenges, and resolve any issues, except for special circumstances.

· All team members should communicate regularly through email, Discord, or other communication channels if necessary.

· All team members are required to respond to messages within 24 hours.

· Absence in meetings, significant delays in finishing the tasks and no responses to other team members caused by emergencies (e. g. sickness, changes of the course enrolment) should be notified to the team leader as soon as possible. Otherwise, it may lead to contribution deduction.

# Conflict resolution

Conflicts should be addressed openly and honestly, with an emphasis on finding a mutually beneficial solution.

· Issues and conflicts should be discussed in weekly team meetings. If there is an urgent need to tackle the conflict, the team leader can hold an emergency meeting with team members involved or all the team members.

· Every team member involved is asked to declare what happened and their opinions.

· Identify the core of the conflict and discuss the general solution.

· Generate a concrete solution to deal with the conflict. The solution should be agreed to by the majority.

· (Optional) The team should seek the assistance of the shadow team, the course convenor or the tutor if the conflict cannot be resolved internally.

# Team Decision Making

To propose a decision,

* Post the proposal to the #proposals channel on the discord server.
* Discuss with others in a relevant thread and come to a consensus
* The decision passes if at least 4 people *react* to the proposal message
* If necessary, the decision is to be logged in the decision log. Other relevant documents (eg. risk register) are to be updated as well.

At the discussion stage, every team member **equally** has a voice in project decisions, and the final decision is made by majority vote, with the Project Manager having the final say in case of a deadlock. In some cases, the poll should include the opinion of the client. All team members are welcome to construct feedback and actively contribute to decision-making processes, no matter if they approve or disapprove.

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# Tooling

| **Purpose** | **Tool** |
| --- | --- |
| Version Control | GitHub |
| Communication | Discord and Email |
| Documentation | Google Docs and Microsoft Word |
| Landing page | Google Sites |
| Repository | Google Drive |
| Task Management | Trello |
| Development Environment | As every member preference  (e.g. Visual Studio Code, IntelliJ IDEA) |

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# Agile

The group will adopt various agile processes, including but not limited to

* Sprints
* Extreme programming
* Automation everywhere

Faithfulness to these practices are at the discretion of the team practicing them.

# Usage of the user story map

All technical tasks directly related to the project are to be verified as necessary to complete before they are attempted. This is to reduce wasted effort and ensure real, measurable progress at all parts of the project. This will be achieved via the user story map.

A grouping of user stories comprise the backlog of a sprint, this is done by adding user stories to the backlog list of the trello. Next, relevant tags that describe the related deliverables are added. Finally, all commits made to the repo must at least reference the relevant user story it is targeting.

# Code standard

We value code quality and consistency. That's why we follow a set of coding standards and best practices that help us write clean, readable, and maintainable code. We also use tools like linters, formatters, and code analyzers to enforce these standards and catch potential errors. To prepare the open source, we have written the related contribution guide at [our repo](https://github.com/techlauncher-mlai-edge-physics/physics_in_the_browser/blob/main/CONTRIBUTION.md).