



HÁSKÓLINN Í REYKJAVÍK
REYKJAVÍK UNIVERSITY

MMOs for Science

Game Design: MMOS injection to Eve Online

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Introduction

Injecting new content into EVE Online requires a lot of consideration and care due to the scope of the game. In this document we present our ideas for how we see the research projects from MMOS as a mechanic of the game and discuss the design of a prototype to realise those ideas.

Research projects in EVE Online

The main constraints of integrating MMOS research projects into EVE Online was that it could not affect the core gameplay too much, and it had to be flexible with regards to research projects coming and going.

In light of these constraints we introduce the idea of performing general research in the EVE universe for research points. This research module will list the projects that are available to work on from MMOS and will be available at any time from the main UI so that players can work on problems for example in downtime such as when they are in middle of warp or waiting for their friends. This is flexible with regards to research projects coming and going.

Players who will perform this research will receive a new in-game item in the form of research points. How many research points players receive is determined by how well they do with a particular research task. These research points that players collect will be tradeable. This allows the EVE developers to fully control how these rewards will affect the game. Making these research points valuable is then possible in a number of ways and open to future ideas:

- When the EVE developers release new items, players could donate research points for their faction to have their item released first
- Research points could be used as a resource when manufacturing items from blueprints or developing new blueprints
- Research points could be used for special items in the New Eden Store (virtual item store inside EVE Online)

Players will also have a personal history of how many research points they have gathered and there will be a scoreboard where players can compare their research proficiency.

The Science Project

The research project the prototype will be implemented for is the *Human Protein Atlas — Subcellular Atlas*. In the project the task is to classify images of immunofluorescently stained cells (see [image example](#)) into one or more of 25 categories. The blue staining are the nuclei, the red staining are the microtubules and the green staining are antibodies. The classification involves selecting reference images representing a location, distribution and shape of the antibodies that match the image given for classification. Essentially where and how the green staining is in the image. The categories are very varied and their descriptions reference highly scientific concepts so part of the design challenge was to simplify them, see [the appendix](#) for the simplified descriptions. These descriptions were then verified by the scientists working on the Subcellular Atlas.

Image example

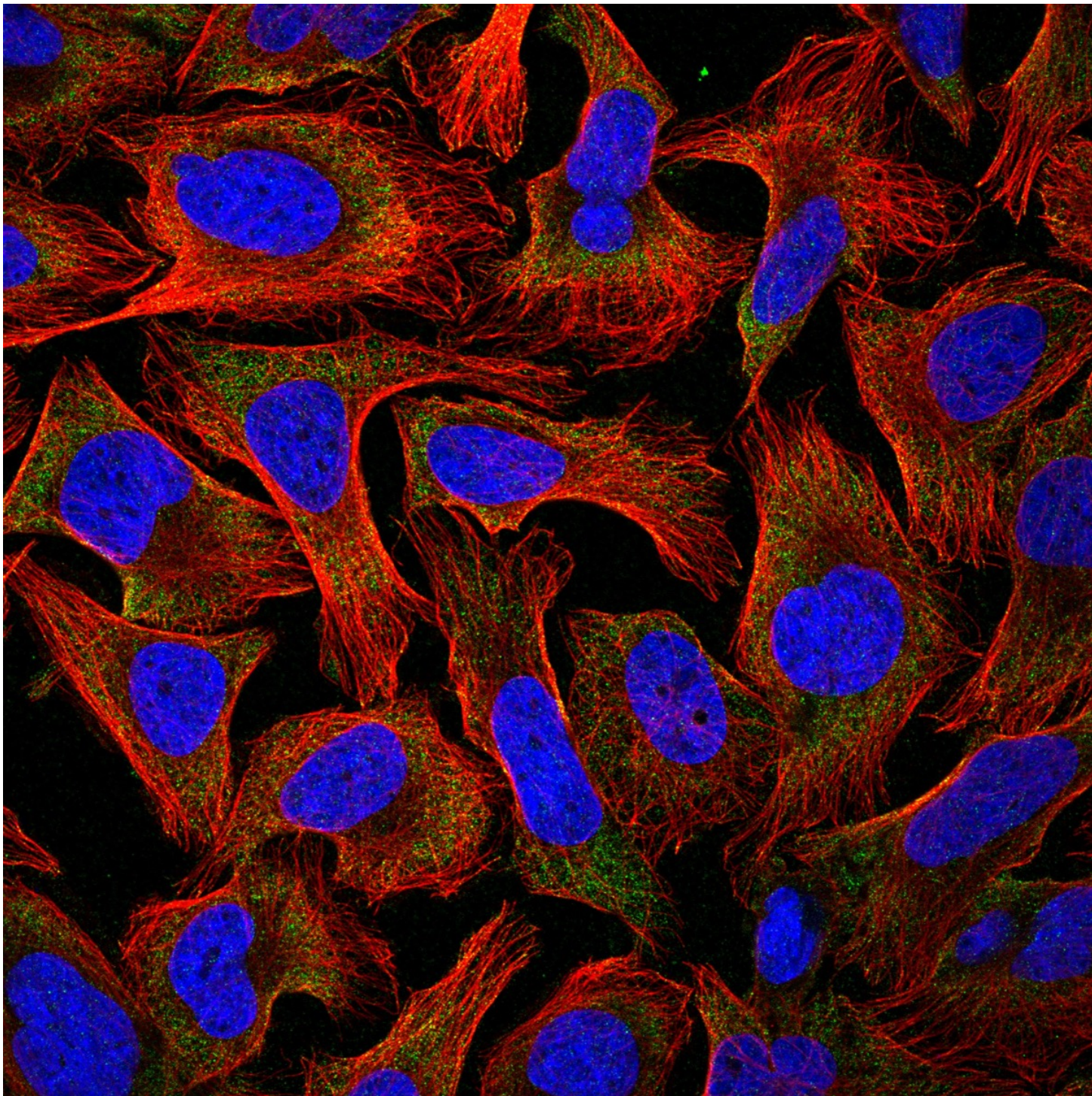
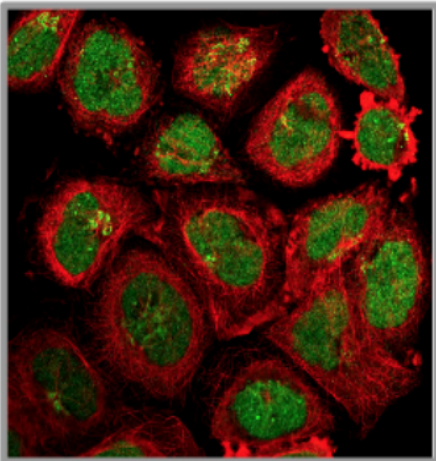
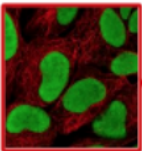
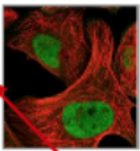
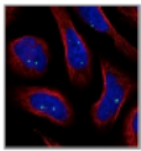
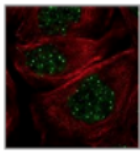
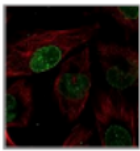
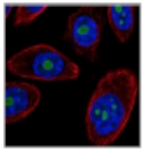
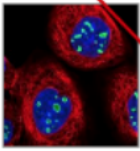
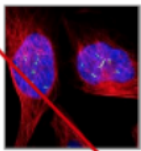
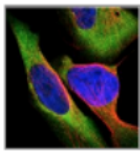
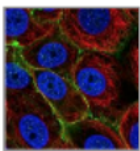
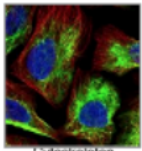
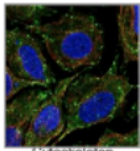
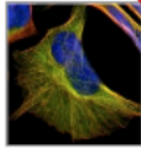
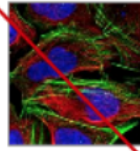
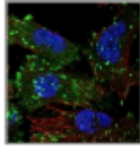
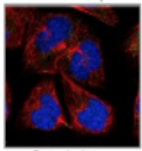
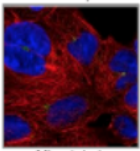
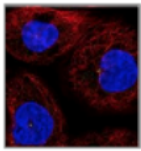
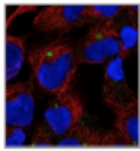
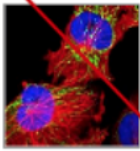
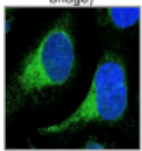
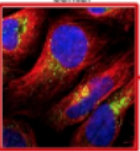
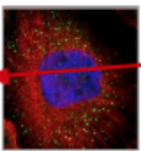
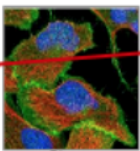
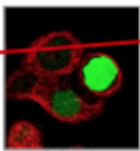


Image with classification categories

Task 1: Finding reference patterns in sample image



Sample

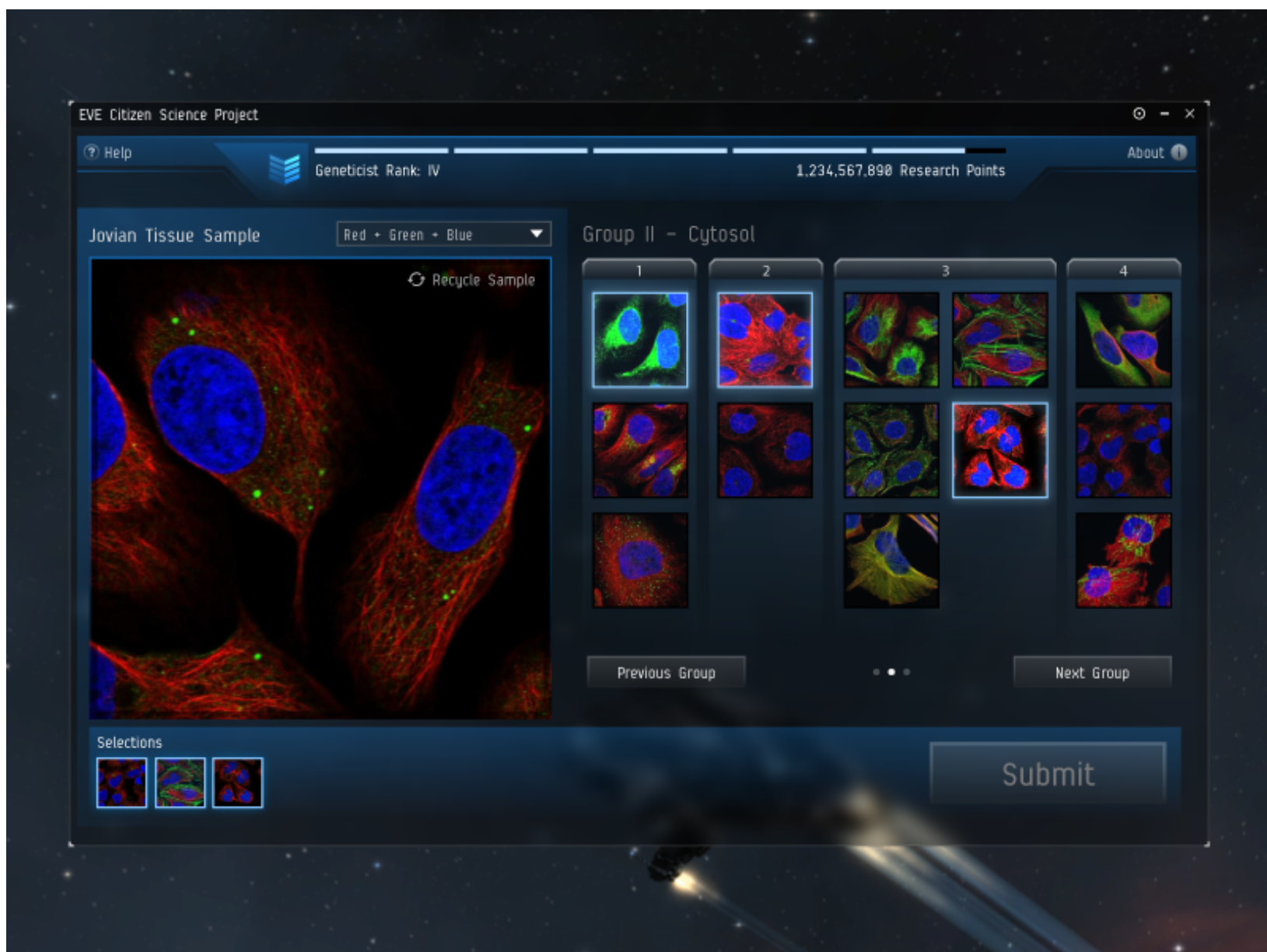
 Nucleus	 Nucleoplasm	 Nuclear bodies (few)	 Nuclear bodies (many)	 Nuclear membrane
 Nucleoli (full)	 Nucleoli (rim)	 Nucleoli (fibrillar center)	 Cytoplasm	 Cell junctions
 Cytoskeleton (intermediate filaments)	 Cytoskeleton (microtubule ends)	 Cytoskeleton (microtubules)	 Cytoskeleton (actin filaments)	 Focal adhesions
 Cytoskeleton (cytokinetic bridge)	 Microtubule organizing center	 Centrosome (centrioles)	 Aggresome	 Mitochondria
 Endoplasmic reticulum	 the Golgi apparatus	 Vesicles	 Plasma membrane	 Cell cycle dependent

All reference images and names will also be distributed separately.

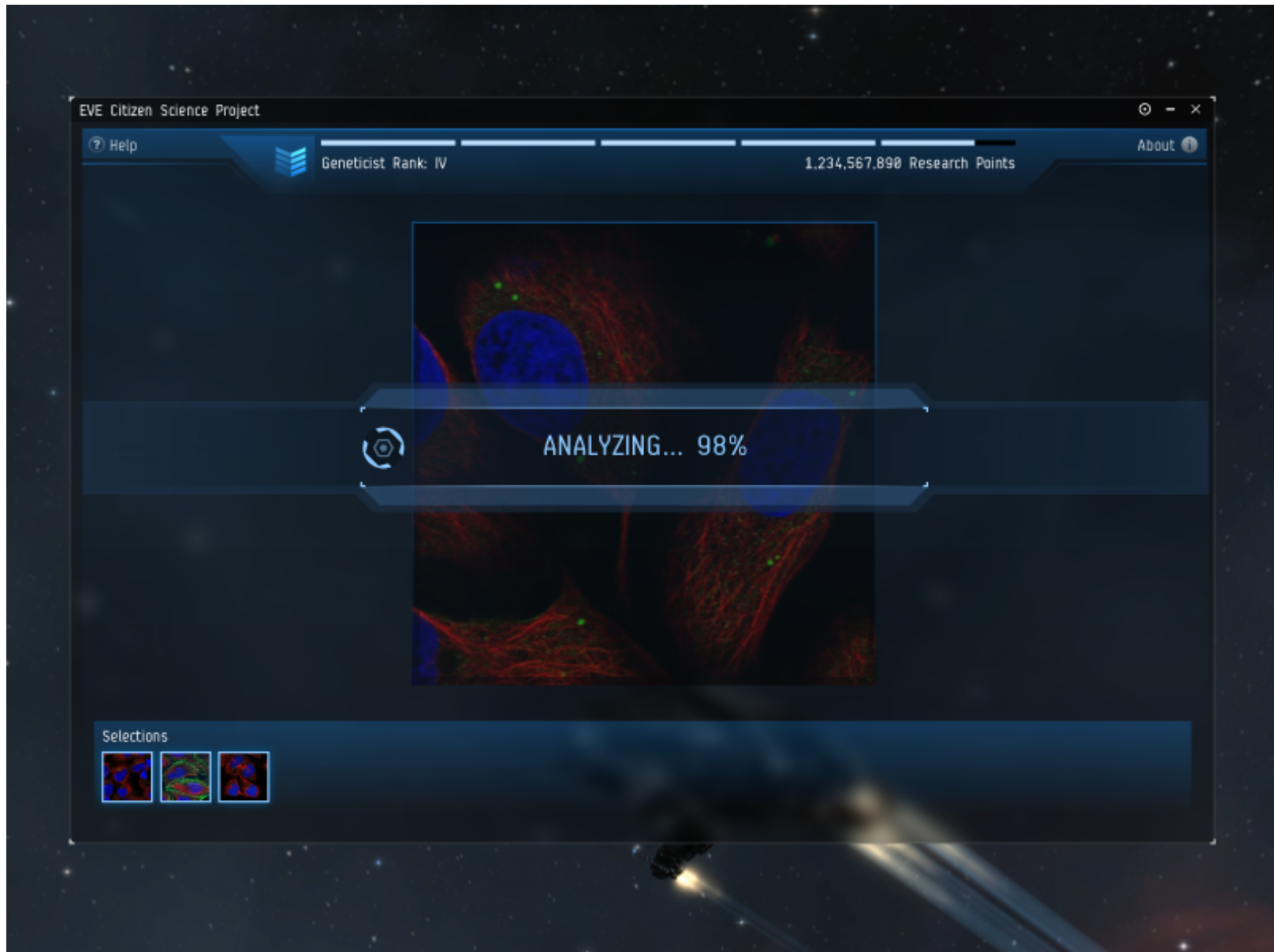
Player selects patterns found in green channel sample image

Game design

The main screen for for user shows the sample image that needs to classified on the left and the classification categories on the right. With 25 categories it is difficult to show them all on the same screen so they are split into 3 pages that are organized by antibody location (inside the nucleus, inside the microtubules and outside the cell). User can select multiple categories therefore showing the user what he has already selected is crucial. Selected categories are shown on the bottom of the window and clicking on the category image there will deselect that category. In the header of the main window there is a help button and an info button. The help button will open up instructions for the user and the about button will open up some information about the project. The user can climb ranks for playing the game so his rank is shown in the header. His total research points is also shown in the header.



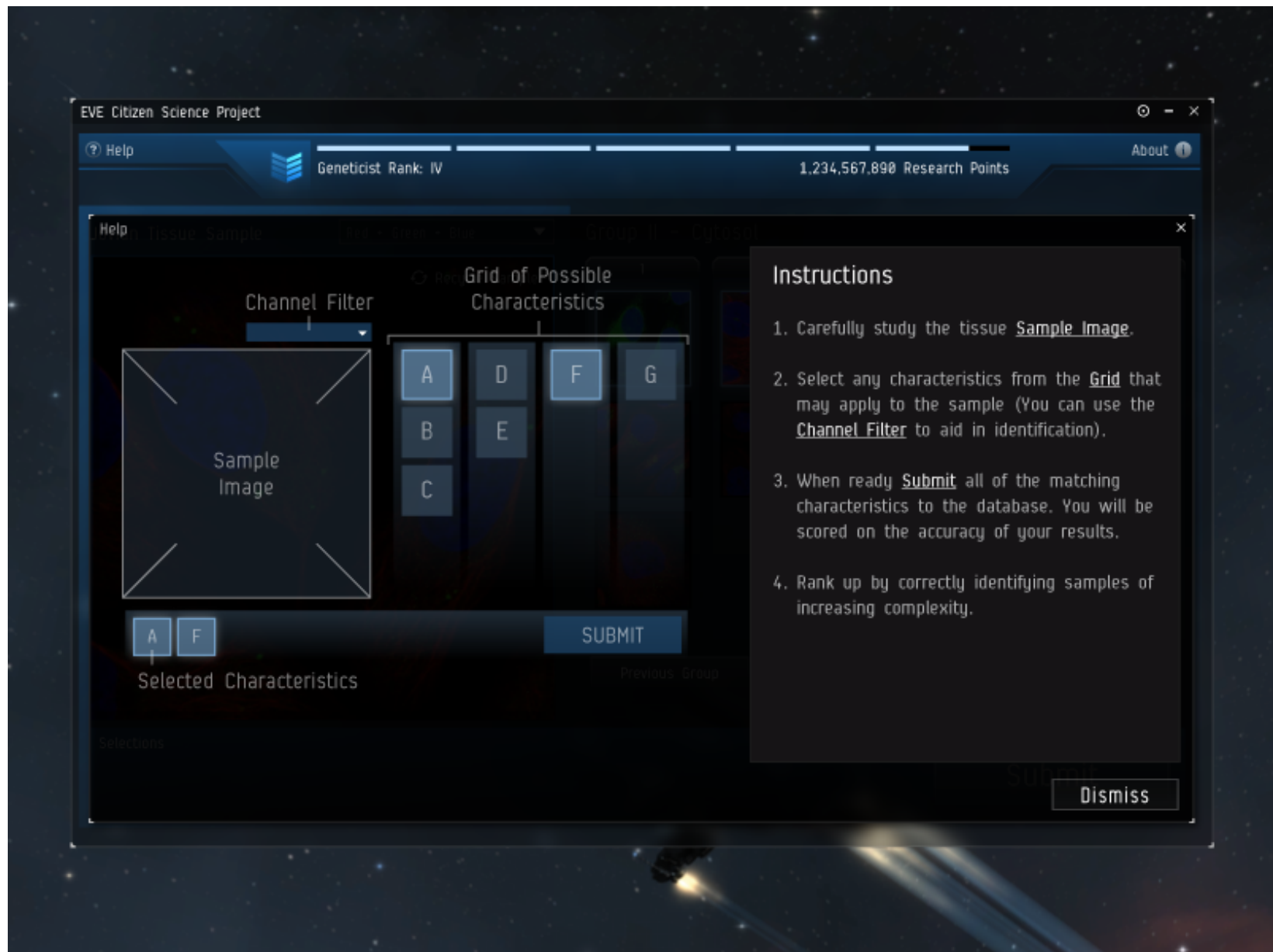
When user has chosen the categories he will submit the solution. Then an analysing window will be shown that with animation will show the user there is a work in process. This feature will give the user something to look at if the MMOS server is responding slowly.



When analysing is completed a feedback to the user is given. He will notice how much accuracy his solution has and how many points he is given for that solution. The header is now updated with latest score. The user will push the continue button to get next task.



The instruction window is when a user click the help button. In the instructions view the header is still in place. There is a image on the screen showing how the game is set up and where each part of it is. Then there is a instructions text giving the user a bit more details on how the game works.



The about button was supposed to be about the project and MMOS with a video. This feature needs to be discussed more and might link to a website or just not be there. This is because the content inside the window is not EVE Online related and needs to be separated from the game itself. One idea is having it inside the main settings window where user can take a look at it if he feels like it.

Appendix

Classification category descriptions

Name	Original description	Revised description
Nucleus	The nucleus takes up a big part of the cell volume, and looks like a big, round ball. The nucleus contains the DNA, which encodes genetic information.	The green areas look like large round balls inside the cell.
Nucleoplasm	The nucleoplasm encompasses everything in the nucleus except the nucleoli.	The green areas look like big, round balls, with small holes in them.
Nuclear bodies (few)	Nuclear bodies are uneven structures found in the nucleus. It is a collective term for structures with different (often unknown) functions but similar staining pattern.	A few green uneven spots are found inside the nucleus.
Nuclear bodies (many)	Nuclear bodies are uneven structures found in the nucleus. It is a collective term for structures with different (often unknown) functions but similar staining pattern.	Many green uneven spots are found inside the nucleus.
Nuclear speckles	A common pattern is a "speckled" nuclear staining (like leopard speckles). They are distributed evenly throughout the nucleus (usually around 25-50 per cell). Speckles are also organizing the DNA.	Green blots are distributed evenly inside the nucleus, similar to the pattern of leopard speckles.
Nucleoli	Nucleoli are usually stained as small, somewhat elongated circles in the	Small, somewhat elongated green balls can be found inside the nucleus.

	nucleus. However, their staining pattern can vary from the nucleolus being completely stained, to only a small part of it, sometimes in a spotty pattern. It is common that proteins are localized to both the nucleus and the nucleoli, with different staining intensity, as well as only the nucleoli. The nucleoli take part in several different processes in the cell, and produce part of the endoplasmic reticulum.	
Nucleoli (rim)	The edge of the nucleoli is stained stronger than the rest of the nucleoli.	Small, green blots with pronounced edges can be found inside the nucleus.
Nucleoli (fibrillar center)	Clusters of small spots in the nucleoli.	Clusters of green spots can be found inside the nucleus.
Nuclear membrane	The nuclear membrane is easy to recognize, the staining forming a thin circle around the nucleus. It is sometimes also possible to see the many folds of the nuclear membrane. Its purpose is to keep the nucleus and cytoplasm separated, so the DNA in the nucleus stays in one place.	A thin green circle marks the edge of the nucleus.
Cytoplasm	The immunofluorescent staining of the cytoplasm encompasses the whole cell except for the nucleus. The staining can vary in intensity throughout the cell, and is often stronger close to the nucleus. The cytoplasm is a very heterogeneous mixture of different proteins.	The whole cell, except for the nucleus, is marked green.

Aggresome	The aggresome can be seen as a very dense, oval ball next to the nucleus. It overlaps with a hole in the microtubules. The aggresome contains proteins that are misfolded, which should be sent for destruction.	Small, dense, green balls can be found next to the nucleus.
Mitochondria	Mitochondrial stainings are most often easy to recognize as they have a long, thread like pattern, rather like spaghetti (sometimes long, and sometimes chopped up). They are spread throughout the cell, starting centrally, close to the nucleus and stretch all the way out to the edges of the cell. The mitochondria are responsible for supplying the cell with energy.	Green, thread like patterns can be found throughout the cell, starting centrally.
Cytoskeleton (intermediate filaments)	Intermediate filaments often have a tangled, rope-like structure that supports the cell structure. Those are often seen throughout the cell, whereas others, enclosing the nuclei, have a more condensed look. The role of intermediate filaments is to provide a mechanic support to the cell.	Green, tangled, rope-like structures can be found throughout the cell, sometimes in condensed patterns enclosing the nucleus.
Cytoskeleton (microtubule ends)	The microtubules grow by adding new fragments to the "plus ends", which are the tips of the microtubules, furthest away from the nucleus. Sometimes only one end is stained and not the rest of the microtubule.	Green spots can be found at the tips of the microtubules, furthest away from the nucleus.

Cytoskeleton (microtubules)	Staining of microtubules shows thin strands that stretch throughout the whole cell. It is almost always possible to detect the center from which they all originate, the centrosome, even though it need not be stained. The purpose of the microtubules is to act as a railway for transports around the cell.	Thin green strands stretch throughout the whole cell.
Cytoskeleton (actin filaments)	Actin filaments are easy to recognize as they are often localized close to the plasma membrane, outlining the edges of the cell. They can usually be seen as long, very straight and parallel filaments and help hold up the membrane.	Long and straight green strands outline the edges of the cell.
Cytoskeleton (cytokinetic bridge)	The cytokinetic bridge is a small structure present during the last stage of cell division, and can only be seen at the tip between two cells that have almost been separated and moved apart. It acts as a scissor, which cuts the bond between the two cells.	Small bright spots mark the tips of cells that almost touch each other.
Microtubule organizing center	The centrosome/MTOC always overlaps with the center of the microtubules, making it easy to find next to the nucleus. Stainings of single or double spots at the origin of microtubules are annotated as centrosome whereas larger structures stained at that location are annotated as MTOC (microtubule organizing	Multiple green spots can be found tightly packed at the center of or next to the nucleus.

	center). The centrosome helps the cell to divide.	
Centrosome	The centrosome/MTOC always overlaps with the center of the microtubules, making it easy to find next to the nucleus. Stainings of single or double spots at the origin of microtubules are annotated as centrosome whereas larger structures stained at that location are annotated as MTOC (microtubule organizing center). The centrosome helps the cell to divide.	One or two green spots can be found at the center of or next to the nucleus.
Endoplasmic reticulum	The endoplasmic reticulum is a network stretching throughout the cytoplasm. It's structure can be likened to a spider web and it's a hub where proteins are stored and sometimes modified before sent along to the Golgi apparatus.	A tight web of green staining can be seen throughout the cell.
The Golgi apparatus	The Golgi apparatus is located next to the nucleus, sometimes growing around it. It often looks like collection of small particles. The Golgi handles incoming proteins from the endoplasmic reticulum, modifies them and then sends them off to their final destinations within the cell.	A collection of green spots can be found next to or around the nucleus.
Vesicles	Vesicles can be seen as small, bright dots that are uniform in size and shape. They are either distributed evenly throughout the cell, or clustering next to the nucleus. Vesicles are	Small bright green spots uniform in size and shape can be found evenly distributed throughout the cell or next to the nucleus.

	responsible for moving things (cargo) around in the cell.	
Cell junctions	Staining of cell junctions can only be observed when the cells are in contact. The staining is very specific, and is only seen at the actual site of cell-cell connections. Cell junctions are important for cell-cell communication.	Green staining can be found at the junction of cells.
Focal adhesions	Focal adhesions are localized just outside the cell membrane and can thus be found either just under the cell or at the edge of the cell membrane, where the cell is attached to the surface. They are the feet of the cell, and is what the cell uses to move across a surface in response to signals.	Green spots that look stretched can be found at the edge of the cell or under it.
Plasma membrane	The cell membrane – or the plasma membrane – encloses the cell and acts as a border towards the environment. Staining of the cell membrane can appear differently, sometimes the staining only appear as a rim around the cell, sometimes protrusions are extending from it and sometimes it may appear as a uniform and very flat staining across the entire cell.	Green staining can be seen enclosing the cell, either uniformly across it or as a thin rim around it.
Negative	No or extremely weak green staining is seen in the image.	No revision needed.
Unspecific	No distinguishing patterns can be identified from the staining. All parts of the cells	No revision needed.

	are stained uniformly or staining artifacts are seen outside the cells.	
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Extra concepts

A lot of good ideas were discussed during the brainstorming meetings about where the research projects could fit into EVE Online. The idea above is minimizing the risk of failure when it's introduced into the game as it does not affect other game mechanics. Here below are short descriptions of few of the ideas that were discussed and could fit in the near future. These ideas have in common that they all affect core game mechanics.

Gate camp survival

Gate camping is one of the PvP tactics in EVE Online where players wait at a star gate for other players to pass – to capture, destroy or ransom them. This idea evolves on increasing your gate standings to give you some benefit when you are in need.

Pros:

- Totally new content for players when they are in the waiting game etc (chatting, waiting for fleet, mining etc etc)

Cons:

- Will be kind of mandatory for all players to try to benefit from this feature or buy it

Project Type:

- Protein Atlas — Human Protein Atlas

Corpse implant recovery

When a player gets podded the corpses are most often just left in space and have no special meaning. With this idea, the player can pick up the corpse and crawl into the brain of that dead clone and try to recover implants. Here we would use the protein and cells images. Player goes through x images which will give him points from MMOS and those points will give him percentage of recovery of each implant inside that clone.

Pros:

- Give corpses meaning and value

Cons:

- To be implemented in game on our timeframe it would require too much time from CCP programmer to make all the game mechanics on corpses.

Project Type:

- Protein Atlas — Human Protein Atlas

Jump further (jump fatigue)

This idea is about giving people opportunity to collect items that allows them to participate in the minigame. From that they will get materials to create a pill for capital pilots jump fatigue.

Cons:

- Will create a new item that only capital pilots will benefit from.
- Risky to start messing with such a new content like jump fatigue

Project Type:

- Protein Atlas — Human Protein Atlas



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MMOs for Science

User Manual

Authors:

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Supervisor:

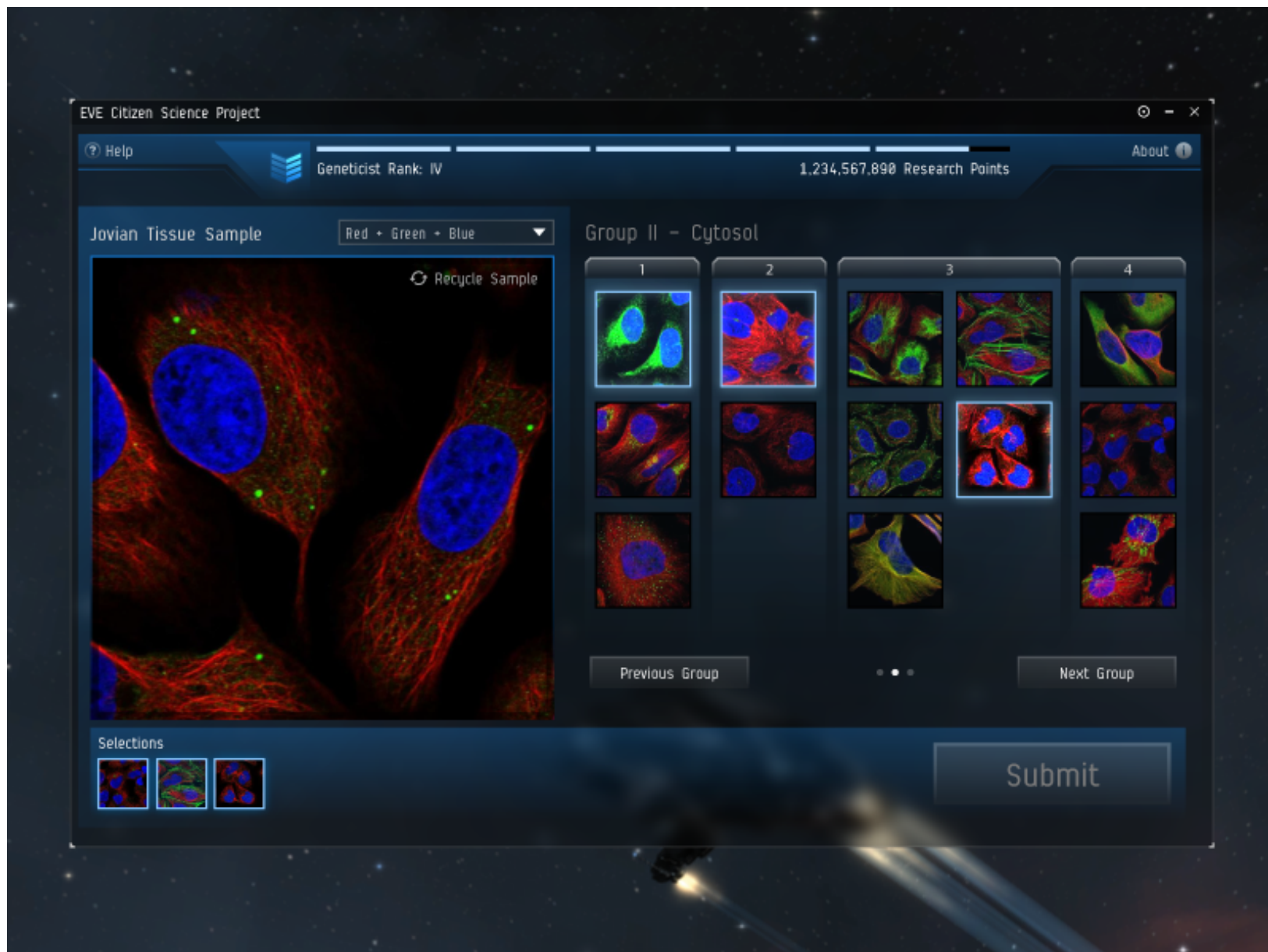
Elín Elísabet Torfadóttir

External examiner:

Daníel Máni Jónsson

Gameplay

When a user opens up the mini-game they will go straight to the main screen and receive a task straight away. The user can see their rank, total research points, a help button, an about button, the image to classify with a dropdown list for different color channels, the categories for classification, and the selected categories and a submit button at the bottom.



Rank

The rank represents how good the user is at solving the tasks. The user can rank from one to five where five is the best.

Points

The research points number show how many points the user has received from the beginning of the project. Even though the user uses their points in game (by trading them, buying something or using them for some other feature) they will still see their all time total of received research points.

Help button

The help button is for more information about how to solve the tasks. For example for the project of classifying images the user is shown what they are looking for in the image and what the meaning of the categories.

About button

The about button is a link to real-world information about the research project.

Task image

The task image is the image that needs to be classified. The user is always looking for the location and the shape of the green staining in the image, and they can use the dropdown list to select other color channels to help with the classification.

Categories

The task is to classify images based on the location and shape of antibodies (the green staining). There are three super categories which are split into three pages of subcategories in the UI. The super categories are:

- **Nucleus** - antibodies in the nucleus of the cell (stained blue)
- **Cytoplasm** - antibodies in the cytoplasm of the cell (stained red)
- **Periphery** - antibodies outside of the cell or not present

The subcategories have a tooltip that is displayed when a category is hovered over to show more information about what the it represents.

Selection bar

The selection bar at the bottom shows all selected categories by the user. This makes it easier for the user to see what they have selected from previous pages of categories and to show when the selection of a category excludes the selection of other previously selected categories. The player can also click on an image in the selection bar to deselect that category.

Submit button

The submit button is to submit the current selection of categories as a solution. An analysing window will be shown, followed by a result window that shows the accuracy of the solution and how many research points the user has received for it.



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MMOs for Science

Operation Manual

Authors:

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Supervisor:

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Since the project is integrating a gameplay feature into an already deployed game there are not many operation considerations. They are essentially activating the feature in the game build and on the server.

The game is all included in one Python package in the main package directory of the EVE Online codebase. This package is split up into two modules, `client` and `server`. When the package is built for the EVE Online client the server module should be excluded for the build, and when building the package for the EVE Online server the client module should be excluded.

On the server the `CitizenScienceService` needs to be running for the game to function. This service is in the `citizenscience.server.service` module.

On the client the game can be launched initiating an instance of the `CitizenScienceWindow` which is in the `citizenscience.client.window` module.

2015-01-22 Meeting notes

Date

 21 Jan 2015

Attendees

- [Pétur Örn Þórarinnsson](#)
- [Steven Clark](#)
- [RU - Þór A. Rúnarsson](#)
- [RU - Gunnar P. Stefánsson](#)

Goals

- Meet and greet, discuss how we're going to collaborate
- Start identifying useful design goals and principles for the project

Discussion Points

When do players perform the task?

- In situations where they'd normally be inactive
 - While mining
 - During warp
 - While waiting on others (waiting on fleet, hauler, gate camp etc.)

What type of research projects work well?

- Ones that with a real world altruistic purpose
- Ones that lend themselves well to the EVE universe
- Ones that have tasks that are relatively consistent in length (within the project)

What motivates players to perform the task?

- Altruistic in-game effect
 - The effect benefits areas or groups of people no matter who does it
 - Contributions being visible to others
- Conversely, this could work as a career
 - Ability to contract/delegate the tasks to others allows players to specialize and make ISK on the side if they're active
- Gives utility or secondary benefits to a particular activity/situation, as opposed to a minor bonus in efficacy

Action items

- ☒ Pétur Örn Þórarinnsson will set up a CCP wiki for the project and get everyone involved access
- ☒ Pétur Örn Þórarinnsson will set up weekly meetings
- ☒ Pétur Örn Þórarinnsson will recruit a CCP programmer liaison for the project
- ☒ Pétur Örn Þórarinnsson will create a dedicated brainstorm section where we can start gathering ideas
- ☐ We will start gathering our resources, ideas and documentation on to the wiki

2015-01-28 Meeting notes

Date

 28 Jan 2015

Attendees

- Pétur Örn Pórarinsson
- Steven Clark
- Kristinn Pór Sigurbergsson
- MMOS - Szantner Attila
- RU - Pór A. Rúnarsson
- RU - Gunnar P. Stefánsson

Goals

- Discuss what research project to use
- Feedback on what research projects look promising for use
- Deadlines for MMOS
- Discuss what type CCP programmer support is needed

Discussion items

- *We will need to figure out whether its reasonable to build the project inside the EVE client or not for the purpose of the prototype/RUproject*
- *Protean Atlas is a favorite, can be themed as bio/tech, has consistant problem solving complexity/time needed*
- *Atilla mentioned Exoplanet as a good potential as well, should look into that*
- *Thor and Gunnar are currently focusing on design, they are planning to start programming in mid-Feb*
- *Atilla is going to send a TDD on the API next week*
- *We're aiming to build the prototype outside the EVE client*
-

Type your task here. Use "@" to assign a user and "/" to select a due date.

Action items

- ☐ Thor and Gunnar will start exposing design docs on the wiki for input
- ☐ Attila will send TDD about API next week
- ☐ Attila will put research project options on the wiki

2015-02-04 Meeting notes

Date

 06 Feb 2015

Attendees

- RU - Gunnar P. Stefánsson
- RU - Pór A. Rúnarsson
- Pétur Örn Þórarinnsson

Goals

- Decide what research project to use
- Discuss the MMOS API documentation
- Discuss what type CCP programmer support is needed
- Decide what concept to use

Discussion items

Game design


- Protean atlas
 - Image sorting preferable
 - Use dead times (easy access from anywhere, during any scene, what is the optimal length for a task?)
 - Successes create items(rp)
 - EVE Dev can do w/e they want with the items (research race, recipes...)
 - Can be rewarded quickly
 - Personal History
 - Score board (potentially useful for prototype)
-
- API provides score and reliability score, could translate into rewards of different quality/quantity

Things we might want to ask API for

- Quality of player, could be used as prereq, at the very least useful for epeen
- What type of feedback can we give to assist players, more tutorial?
- How can we give sense of progression without alarming the player that he is dealing with something that is unsolved
- Are there difficulty categories for the tasks/images, i.e. does MMOS know how difficult the tasks are that they dole out to players

User journeys

Action items

- ☐ Create a game design document RU - Gunnar P. Stefánsson, RU - Pór A. Rúnarsson
-  Get developer to send examples of user journey to Gunnar and Pór Pétur Örn Þórarinnsson

2015-02-11 Meeting notes

Date

 11 Feb 2015


Attendees

- RU - Pór A. Rúnarsson
- RU - Gunnar P. Stefánsson
- Pétur Örn Þórarinnsson
- MMOS - Szantner Attila

Discussion items

- A working dummy version of the API, but prototype work can start before that
- Game design notes on the wiki
- Prototype could benefit from UI components from EVE Online
- User journeys <http://designingcx.com/>

Action items

- ☐ Dummy API MMOS - Szantner Attila  20 Feb 2015
- ☒ Put game design notes on wiki RU - Pór A. Rúnarsson RU - Gunnar P. Stefánsson
- ☒ Look into user journeys RU - Pór A. Rúnarsson RU - Gunnar P. Stefánsson
- ☒ Request UI components for prototype RU - Pór A. Rúnarsson RU - Gunnar P. Stefánsson

2015-02-18 Meeting notes

Date

 18 Feb 2015

Attendees

- Pétur Örn Pórarinsson
- RU - Pór A. Rúnarsson
- RU - Gunnar P. Stefánsson
- MMOS - Szantner Attila

Discussion items

- Research project, Subcellular Atlas, focus on task 1
 - Classify an image according to many static reference images
 - Possibly have subclasses of reference images so that you dig down as you classify
- Hold off on HR press about the project until after the fanfest

Action items



2015-03-11 Meeting notes

Date

 11 Mar 2015

Attendees

- RU - Gunnar P. Stefánsson
- RU - Þór A. Rúnarsson
- MMOS - Szantner Attila

Discussion items


- Images from the lab have been categorised. [Gamification task 1 hierarchical_classes.pdf](#)
- There will be 6 images of different colour channels instead of 4 transparent channels that we can overlay.
- There is no need for the API to handle CORS as we are going to set up a server-side component that will act as a proxy. This also mimics an actual implementation better and helps us interface with the EVE API for login if we implement that.
- Attila is coming to Iceland on the 16th.
- We also discussed on having a meeting with the university PR team after fanfest as they had shown interest. And have the MMOS team attend the meeting as well.

Action items

- ☐ MMOS needs to upload the new images into the database [MMOS - Szantner Attila](#)
- ☒ The prototype needs to be updated and hopefully ready for some showoff at the fanfest. RU - Þór A. Rúnarsson - RU - Gunnar P. Stefánsson
- ☒ Talk to the university PR team and schedule a meeting. RU - Gunnar P. Stefánsson - RU - Þór A. Rúnarsson
- ☐ Ask [Pétur Örn Þórarinnsson](#) if we can have tickets to fanfest ^_^ RU - Þór A. Rúnarsson - RU - Gunnar P. Stefánsson

2015-04-01 Meeting notes

Date

 01 Apr 2015

Attendees


- [RU - Pór A. Rúnarsson](#)
- [MMOS - Szantner Attila](#)

Discussion items

Item	Notes
Ideas about simplifying the gameplay and description texts	Talked about figuring out the categories and our notes after playtesting. We will finish a document about this and send to Attila who will relay it to the Human Protein Atlas for verification.
Difficulty levels	The Human Protein Atlas will send information about category difficulty levels, which will allow MMOS to progressively make tasks harder for players.

2015-05-13 Meeting notes

Date

 13 May 2015

Attendees

- [RU - Pór A. Rúnarsson](#)
- [RU - Gunnar P. Stefánsson](#)
- [Pétur Örn Pórarinsson](#)
- [MMOS - Szantner Attila](#)
- Martin Hjelmare (Human Protein Atlas)

Goals

- Verify the tutorial text and simplified category descriptions with Martin Hjelmare from the Human Protein Atlas

Discussion items

Item	Notes
Feedback from Martin	Martin was generally OK with the category descriptions and had one comment for the tutorial text that was then updated.
Image optimization	Find the best resolution and compression for the images. The image size in the UI is relatively small (280x280) while the images from the server are high resolution (1200x1200), but for the analysis the higher resolution is good so the UI will probably implement some kind of zooming feature.
New API features	The API now retroactively rewards players once a consensus been reached about a task. A mobile client has been developed to play with the API.

Action items

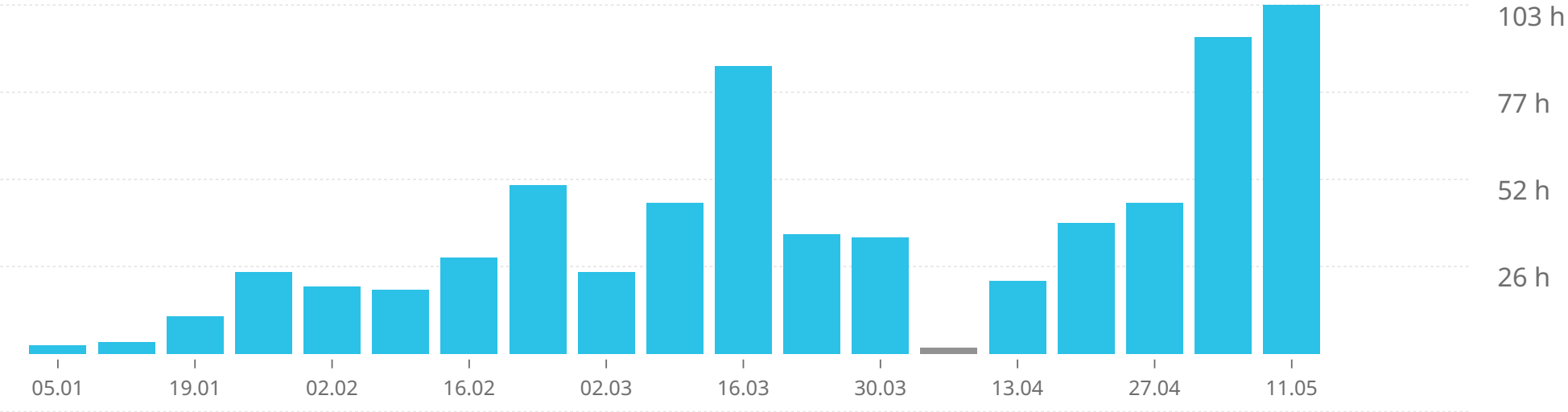
- ☐ [MMOS - Szantner Attila](#), [RU - Pór A. Rúnarsson](#), [RU - Gunnar P. Stefánsson](#) - Find the best image size and compression level
- ☐ Martin Hjelmare - What color channels are relevant to what categories

Summary report

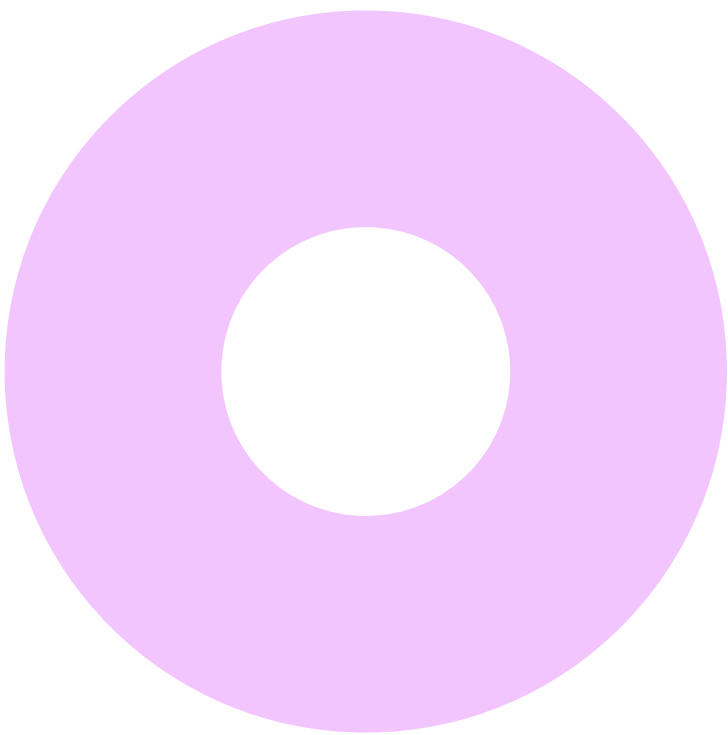


2015-01-05 - 2015-05-16

Total 674 h 54 min

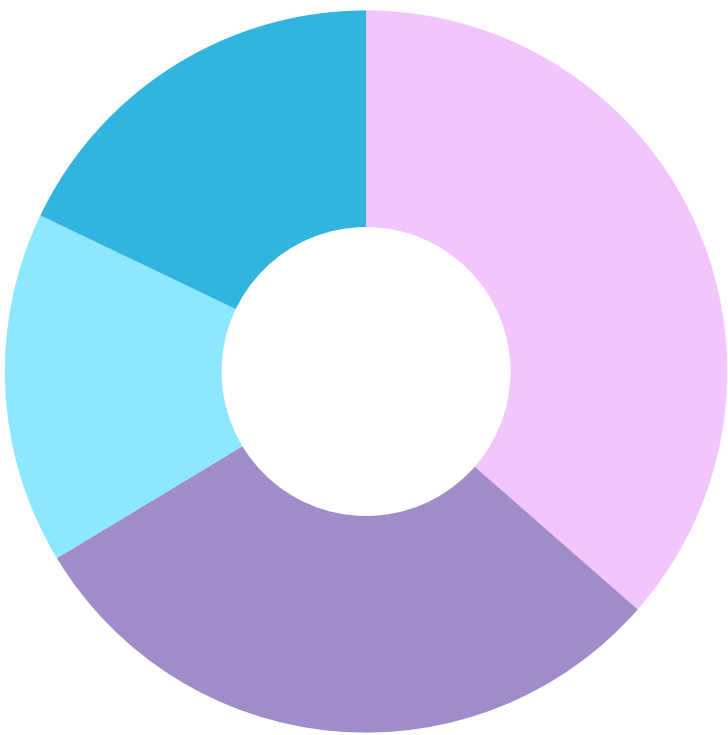


Projects



● MMOS 674:54:43

Time entries



● EVE development 246:00:00
● Development 201:50:00
● Reports 106:22:25
● Other 120:42:18

Projects / Time entries	Duration
MMOS	674:54:43
Backlog	5:22:58
Backlog and burndown	4:00:00
Brainstorming	5:00:21
Brainstorming meeting at CCP	3:00:00
Design and meeting	18:00:36
Development	201:50:00
EVE development	246:00:00
Introduction meeting with CCP and MMOS	2:00:00
Meeting	2:59:14
Meetings	7:00:00
Presentation	9:29:26
Presentation (stöðufundur 1)	10:00:00
Reading materials from MMOS	3:00:47
Reports	106:22:25
Setting up the environment	22:48:56
Setup at CCP	26:00:00
Tasking user stories	2:00:00
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