

The background features a white page with abstract blue geometric elements. Three circles of varying sizes are arranged vertically, each composed of concentric layers of different shades of blue. Two thin, light blue lines intersect at the top left and extend diagonally across the page, framing the circles. A large, partially visible blue circle is at the bottom right corner.

Mylathones

Understanding long form narratives in
TV shows

MS - HCI Final Project Report

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OVERVIEW

My project titled "Mylathones" consists of designing an iPad application for the science fiction TV show FRINGE. The project is aimed at enabling a higher level of involvement with the TV show and helping new viewers connect with the story world and its characters faster and in a more engaging way, than is currently possible.

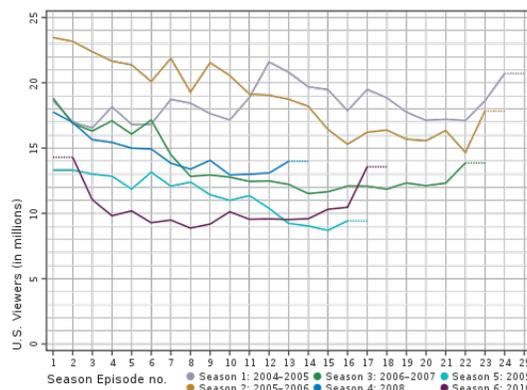
PROBLEM STATEMENT

In recent times many TV dramas have begun to narrate complex stories, which consist of a large number of characters, complex diegetic time lines, and in some cases, even multiple story worlds. While high levels of detail help in creating very interesting narratives, they also make it essential that the viewers follow each and every episode with full attention. As a result, if viewers miss an episode occasionally, it can cause a loss of context with respect to the storyline of the TV show.

This problem is compounded by story lines that are continued over multiple seasons (as in Lost and Fringe). What this means is that it can become difficult for a new viewer to join in from the start or middle of a new season.

This can cause the overall ratings of the show to not increase over time, and since new seasons for such shows are given the go ahead based on the performance of the previous seasons, this can play a crucial factor in the overall success of a series.

Take for example the case of LOST. Its first season averaged 16 million viewers and 2nd season averaged 15.5 million viewers. After that there was a gradual decline in the ratings of LOST, as the show became more convoluted and fewer people were able to keep up with its storyline. The following picture shows how the ratings went downwards after season 2:



When people watch a particular series, they are investing their time in getting to know the story, and connecting with the characters. Character development and the development of the story world is crucial for retaining and keeping viewers invested. Currently this process of getting the viewers hooked is limited to the linear method of watching a series from the beginning, or watching a few successive episodes to get a gist of the story world.

Why have I chosen FRINGE ?

Fringe is a science fiction series created by JJ Abrams and Alex Kurtzman. It aired its 1st episode in 2008 and currently is in its 4th season. Episodes are usually 42 minutes long, with a longer finale. Usually each episode has a main overarching storyline which continues from the previous episodes and an episodic pseudo-science mystery event which the main characters try to solve.

The story world around which the show revolves is a complex one, with lots of technical jargon, repeating timelines, multiple universes and duplicate characters. Keeping tab on what is happening where and how it all relates to the main characters requires the full attention of viewers who have to make sure to watch all episodes in order.

Looking at how the show has fared over the span of 4 seasons can give us a good idea about its complexity. The following table taken from Wikipedia shows the US Nielson ratings of Fringe steadily decreasing with each season.

Season	Timeslot (ET)	Episodes	Premiered		Ended		Rank	Viewers (in millions)
			Date	Premiere viewers (in millions)	Date	Finale viewers (in millions)		
Season 1	Tuesday 9:00 pm	20	September 9, 2008	9.13 ^[93]	May 12, 2009	9.28 ^[94]	#43	9.96 ^[95]
Season 2	Thursday 9:00 pm Monday 9:00 pm ("Unearthed" only)	23	September 17, 2009	7.98 ^[96]	May 20, 2010	5.68 ^[97]	#79	6.25 ^[98]
Season 3	Thursday 9:00 pm (2010) Friday 9:00 pm (2011)	22	September 23, 2010	5.83 ^[99]	May 6, 2011	3.29 ^[100]	#99	5.83 ^[101]
Season 4	Friday 9:00 pm	22	September 23, 2011	3.48 ^[102]	Spring 2012	TBA	TBA	TBA

As has been aptly put in an online article on Fringe: *"Dense stories, long-running story arcs and complex character relationships make Fringe difficult for an average viewer, unfamiliar with the show's mythos, to simply 'drop in' on any given episode. This has been both Fringe's strength and its weakness."* Some of the show's lead actors have also echoed this view. Consider this excerpt taken from an article in chevronone.com: *"John Noble admitted that Fringe's complex story lines could discourage new fans from watching the show. In a recent interview with Digital Spy Noble spoke about why some people are finding it difficult to tune in for a single episode and discussed the show's chances of securing a fifth or possibly a sixth season."* John Noble is one of the leading actors in this series and plays the part of the mad scientist Walter Bishop. He says: *"I think the fans have been amazing, but the bottom line of television is income. One of the issues with Fringe now is that you can't just turn [the show] on and watch it. In the first season, you could [do that] because it was more procedural."* This sentiment on the complexity of the show is also reflected by fans of the show. Here

are some excerpts taken from the various Fringe fan sites on the internet: *"I missed a few episodes and now I'm lost to the point where nothing makes sense."* *"Wait...I thought the other Broyles was dead...didn't they "exchange" him for Fauxlivia at the end of season 3?"* On the contrary one fan wrote: *"The complex plots and dense story arcs are the main reason I watch! I stopped watching first season because it didn't grab me at all – it was only when they started those wonderful multi-episode plots that I got hooked. Such a shame to think that what makes Fringe so high quality might contribute to its demise."*

**source: <http://chevronone.com/tv/john-noble-admits-fringes-complex-stories-may-discourage-viewers/>*

We can broadly divide the problems faced by the viewers into 2 categories:

1. If a user misses the initial episodes, they cannot understand many parts of the existing episode being aired. This may result in the user losing interest in the series and dropping the series altogether - which is bad for the series.
2. Many times users like to re-watch episodes from their favorite dramas. They may not always remember what happened earlier and this may cause confusion as to what is currently going on.

TARGET AUDIENCE: The target audience in this problem area are people who watch TV shows and are in the age group of 18-49 years*. The audience does **not** need to be science fiction fans, since people might just be watching the show for its characters and relationships.

**according to the advertisers who found network television the number of viewers within the 18-49 age range is more important than the total number of viewers.*

General Nature of Solution

The general nature of the solution , is to use a multi-screen navigational framework to provide the users with relevant, real-time data about the information they need. I plan to make a web based application which will run on a secondary device like a tablet. Here is a list of proposed features which this application will have:

1. **All data displayed on the tablet will be synchronized with the episodes.** What this means is that the user will receive data according to what scene is being played on the screen. I hypothesize that this method will provide data that will be helpful in removing any confusion the user may have, in real-time and that this will be a good way to keep the user interested in the episode regardless of the user's knowledge of the TV show.
2. The following represents a list of data I hypothesize will be useful to the user:

2.a A character map - this will display all the characters for the overall storyline, with new characters appearing and/or old characters disappearing as the story progresses episode wise. Viewing each of the individual characters will give you information about their current “status” and/or their background.

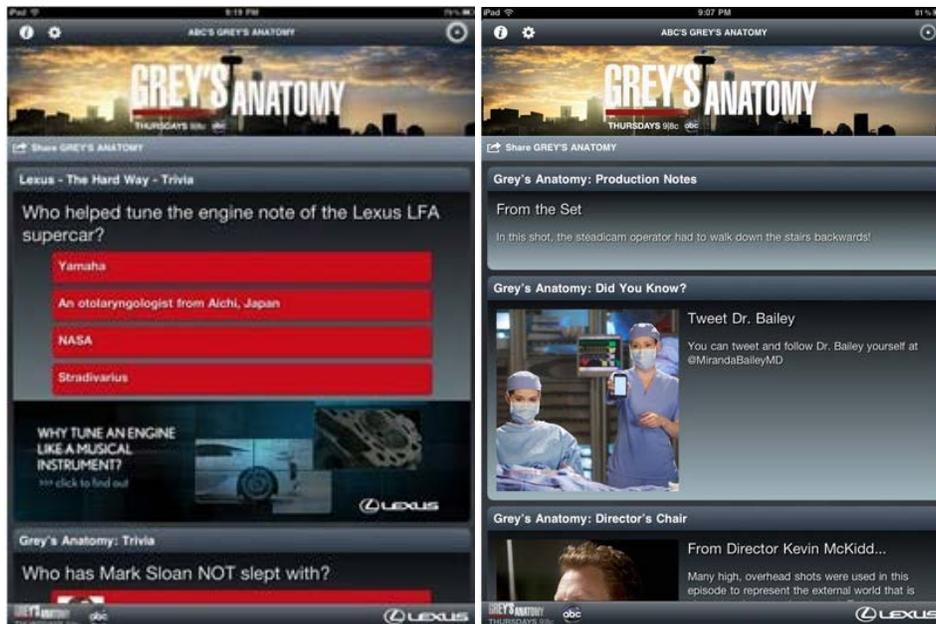
2.b An overall schema - a interactive visualization of how the story of the show developed over the course of several seasons. The users can look at the individual storylines of the show and follow specific events and organizations within the show.

2.c Repository of Fringe events – Data related to the science of the show needs to be shown to the user, when it is mentioned (or shown) in an episode, in order to retain the context of the event for the user.

2.d Plotlines - Similar to the storylines project from eTV lab (spring 2011), there will be a way to navigate the sub-plots within the overarching storyline. This can include things like plots to destroy each city/universe, journeys undertaken by characters in the other universe, role of the ‘observers’ and a date-based timeline of how each of the fringe events came to occur. This can also include storylines depicting Fringe events within each universe and how two such storylines come to intersect in the later part of season three. Details are subject to results of the users tests.

PREVIOUS WORK

Grey’s Anatomy, an American medical drama TV series recently came out with an iPad app for the show which offers viewers “companion content” like polls, trivia, character bios, and photo galleries. The users can synchronize the app with the current episodes by using audio watermarks embedded into the episodes. The app uses the synchronization to provide the viewers with fun trivia and poll questions related to the current scene. There is also a social aspect: users can chat about the show in real time and earn badges for checking into certain show locations. This application focused more on the social media part than on providing related contextual information about the currently viewed episode. One of the major grievances about this app which the users had was the amount of ads that kept popping up on the tablet. This was mainly because the fun trivia polls that appeared on the iPad were sometimes about the displayed adverts, rather than being about the TV show.



Motorola Mobility did a project called “Dual Device User Experience for iTV” where they built a web application which ran on a secondary laptop screen and provided auxiliary information about the show running on the TV. Auxiliary information consisted of IMDB and Wikipedia trivia and news bits, comments from social networks and related multimedia like Google images and YouTube music. Synchronization here had to be manually performed by the users.



The issue with both these projects was that they provided information which was not related to the main storyline of the TV shows. Thus, if the user was ever at a loss regarding the storyline, there was no information on the secondary screen which could help clear the confusion.

Storylines, a project from the eTV lab at Georgia Tech focused on presenting the main story of a dramatic series from different perspectives by presenting a filterable archive of stories arranged in storylines. This was made as a web application running on the iPad with the tablet being used to navigate the storylines and the TV screen being used to view the archive of stories.



Here is a comparison of these existing projects with the proposed project:

Feature / Project	Sync with TV	Story Navigation	Character Bio's	Relationship Graph
Grey's Anatomy Sync	Automatic	✗	✓	✗
Motorola Mobility's Project	Manual	✗	✗	✗
eTV's Storylines	None	✓	✗	✗
Proposed Project	Automatic	✓	✓	✓

USER CHARACTERISTICS

As a general demographic, the following characteristics can be attributed to the potential users of such a system :

- People who watch TV dramas.
- People who are somewhat interested in science fiction.
- Familiar with the English language.
- Are between 18-49 years old.

**according to the advertisers who found network television the number of viewers within the 18-49 age range is more important than the total number of viewers.*

Among this demographic, it's important to identify the sub-set of viewers who might actually require the use of a companion app. I broadly classify this sub-set into two groups :

1. Viewers who have just begun watching Fringe, and would like to get to know the characters and their development so far better.

2. Viewers who are starting a new season or are coming off after a long lay-off and need to catch up on the recently missed episodes.

In order to understand the elements of FRINGE which are most interesting and which might be the cause of confusion, I did a two part study whereby I conducted an online fan survey and a new viewer research to gather this information.

ONLINE FAN SURVEY

I posted a 10 question survey to various FRINGE fan sites. There were a 106 responses. The questions were asked in order to determine the following :

1. How much knowledge the candidates have about the show.
2. What elements of the show they find the most fascinating.
3. Which relationships they find the most interesting.

Here is the full list of questions asked :

1. When did you start watching Fringe?

a. Since the 1st episode of the 1st season.

b. Since the 2nd season.

c. Since the 3rd season.

d. Since the 4th season.

e. Specify a specific season or episode number.

2. How much of the Fringe series have you watched so far?

a. Finished season 1.

b. Finished season 2.

c. Finished season 3.

d. Watched all episodes aired so far.

e. Enter a specific season or episode number.

3. Which element of Fringe is the main reason you watch it?

a. The Fringe science phenomenon.

b. The story of the two universes.

c. Peter and Olivia's romance.

- d. Peter and Walter's trust.*
- e. The role of the Observers.*
- f. The role of Massive Dynamic and Nina Sharp.*

4. Rank these various elements of Fringe from MOST interesting to LEAST interesting:

- a. The Fringe science phenomenon.*
- b. The story of the two universes.*
- c. Peter and Olivia's romance.*
- d. Peter and Walter's trust.*
- e. The role of the Observers.*
- f. The role of Massive Dynamic and Nina Sharp.*

(This was on a scale of 5 - 1 being most interesting, 5 being least interesting)

5. Who do you think is the central character in this series?

- a. Peter Bishop*
- b. Walter Bishop*
- c. Olivia Dunham*
- d. Philip Broyles*
- e. Astrid Farnsworth*
- f. Nina Sharp*
- g. Other (Please Specify)*

6. Which characters in this series do you find the most interesting?

- a. Peter Bishop*
- b. Walter Bishop*
- c. Olivia Dunham*
- d. Philip Broyles*
- e. Astrid Farnsworth*
- f. Nina Sharp*

7. Which season of Fringe did you find the most interesting?

- a. Season 1*
- b. Season 2*

c. Season 3

d. Season 4 - currently ongoing

8. Which season of Fringe did you find the least interesting?

a. Season 1

b. Season 2

c. Season 3

d. Season 4 - currently ongoing

9. In terms of the storyline, please indicate your level of understanding:

a. Easy storyline - So far, I have understood all the fringe events have taken place.

b. Slightly complex - Some of the events have me lost.

c. Convoluted storyline - I have found it difficult to follow what is happening in a series of episodes.

d. Very convoluted storyline - I just watch the series for the relationships between the main characters.

10. If you answered B, C or D in the above question, please state what is it that you find difficult to follow in this series.

RESULTS

- ~ 80% were loyal fans (watched all episodes aired so far, and in order since the pilot episode)
- > 60 % of respondents said that the Fringe science phenomena's and the story of the two universes was the most interesting thing about the show.
- 58.7 % respondents identified Olivia Dunham as the main / central character.
- 79.3 % respondents identified Walter Bishop as the most interesting character.
- 56.5 % respondents said that season 3 was the most interesting season so far.
- 59.3 % respondents said that they understood the show's overall storyline.

INSIGHTS

- The show is complex but easy to follow if the viewer pays full attention to each episodes.
- People prefer the format of a continuing storyline as compared to "Monster of the week" episodes.
- Alternate universes were pretty confusing to the users, esp. when they did not understand the smaller differences between them.
- Here are some of the responses which give us an insight into the fan's interest :

"First episode I saw was Jacksonville. Saw a few more that season, The Plateau in S3, then I went back and watched everything in order. (Was caught up by the time Marionette aired.)"

"The mystery of it."

"All of the above, but mainly I love Walter's character."

"The whole dynamic between Walter, Peter and Olivia and their history."

"I really liked the alternate universe scenarios."

"Learning about characters, introducing all the science, Olivia's experiences in the tank."

"Switching between the red and blue universe. the machine. WALTERNATE!"

NEW AUDIENCE RESEARCH

The aim of this research was to find out the informational elements which caused confusion to the viewers who had never seen the show before. For the purposes of this test, I brought in 5 participants in two groups of two and three, and had them sit down and watch a random episode from the 3rd season. These participants had not watched the show before and knew nothing about beforehand apart from the fact that it was a science fiction show.

I gave the participants instructions to think out loud and voice any doubts that they may have about anything regarding the show. I told them that I will be watching the show with them and will be available to answer any questions they might have prior, while or after watching the show. All of this was done in a very informal setting.

INSIGHTS

The participants said they understood the story of the episode, but they had a lot of questions about the smaller details within the show, esp. the details about the alternate universe, the details about the character. I also noticed the tendency for participants to linger on after they were done watching the show. They asked questions about the past development of the story and the characters.

On the basis of the results gathered I listed out the necessary features which the app would need to fulfill. Three of the major ones are : 1. Explaining the science events. 2. Maintaining context of the location of the scene and 3. Bringing out the differences between the alternating characters and the universes.

I decided to present all this information into two parts as shown below :

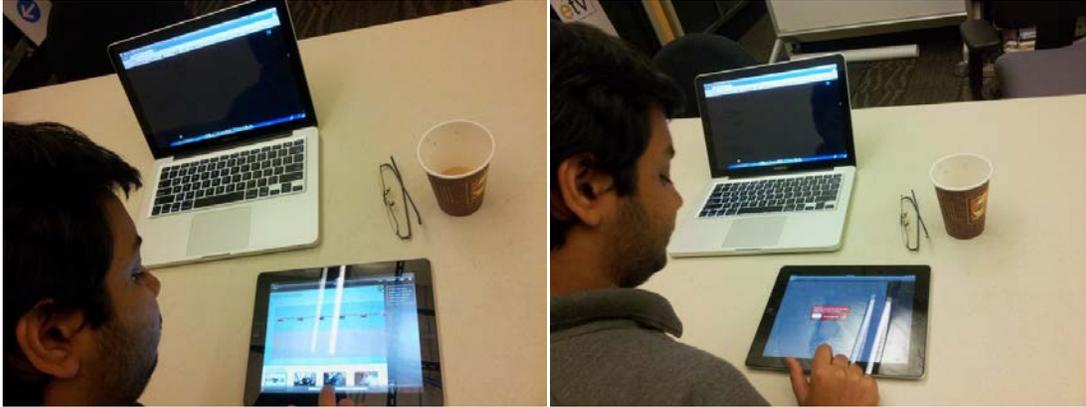


I decided to provide the viewer with character specific information while they are watching the episode. The app would provide basic information about the characters, their location, and any science events they are talking about. This should potentially help answer any questions they might have about any character at the time when they are watching the character.

Once viewers are done watching an episode, they can be provided with a visualization of the entire story and how it has developed since the pilot episode. This aspect of indulging the viewer after they are done watching an episode is a good way of getting them invested in the characters and the story world of the show. We have already seen from our new viewer research that new viewers have a tendency to linger after they are done watching an episode. Providing them with such a visualization should hence prove to be useful.

I mocked up visuals for the interface which will run on the iPad based on the features I decided to include. By placing these mockups on the iPad I did an informal "Paper Prototyping" or "Wizard of OZ" with a few peers whereby I simulated the synchronization between the TV and the iPad while the participant watched the episode while using the iPad.

This informal test gave me an indication of how users were reacting to the design of the interface.



Based on these informal observations I made a few changes to the user interface, but no major changes to the data that was being presented while the user watched the episode and navigated the visualization of the story.

PROTOTYPE

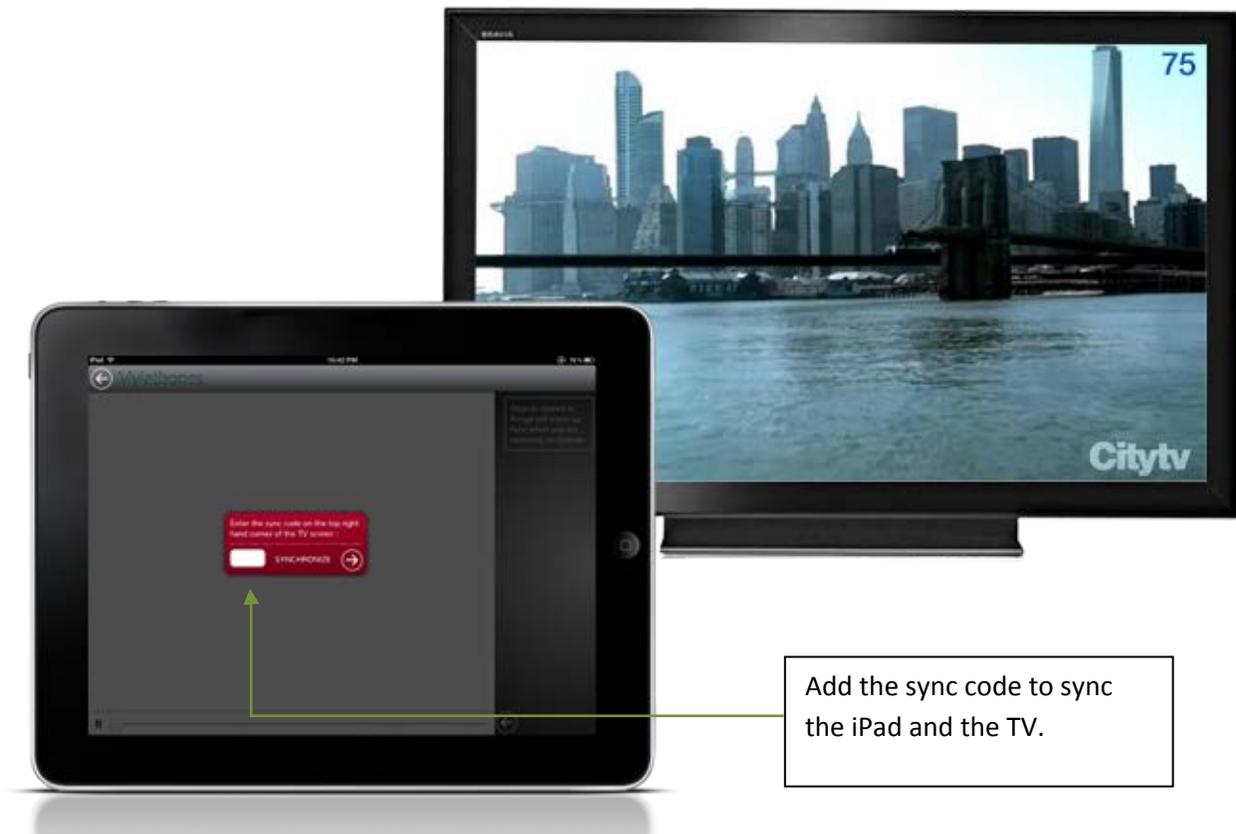
Based on all the results and data gathered from the user observations and the paper prototyping I created a working prototype in HTML5 which synchronizes a web app on the iPad and a simulated TV (a webpage on a smart TV).

The users start by opening the application on the iPad whereby they are presented with the landing page as shown :



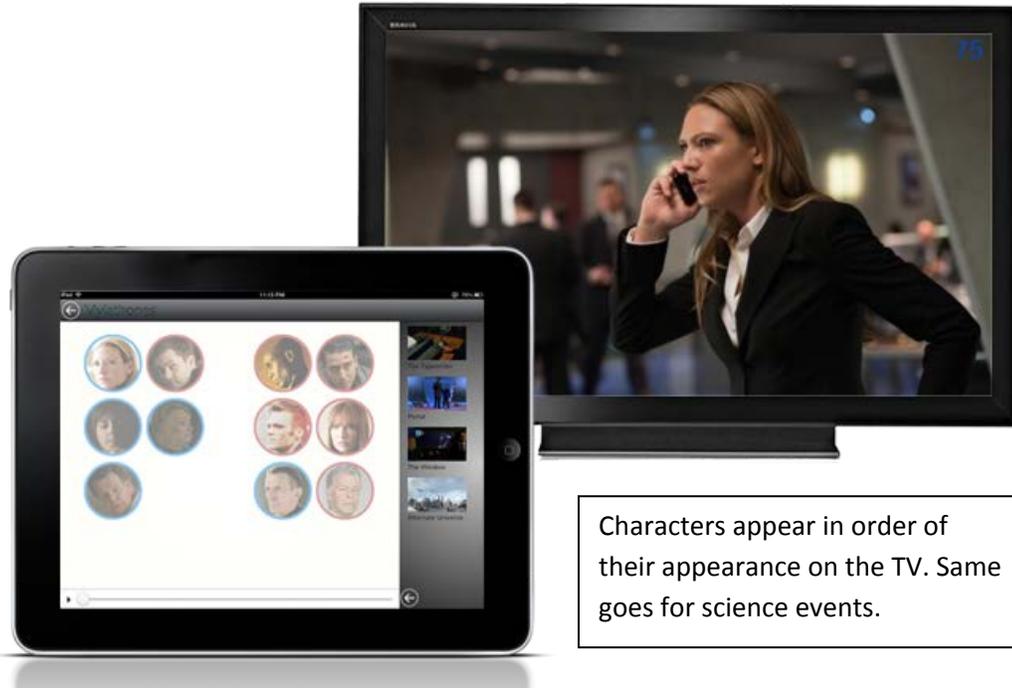
This page presents the users with two options - 1. To watch an episode and 2. To view the "schema".

Tapping on the "Watch an episode" arrow sends the users to a screen where they are asked to enter the synchronization code from the TV. This is the code on the top right corner of the TV where the episode is running.



This synchronizes the iPad with whatever is running on the TV at the moment and the user is presented with a canvas which gets populated by all the characters which appear on screen or are being talked about. Along with this, any science topics that are discussed by characters or shown on the screen are also shown on the iPad.

The canvas on the iPad is split into two main parts. One on the left is the area where the characters pop-up as and when they come up on the TV. These characters are arranged according to when they appear, which universe they belong to (color coded circles), and which universe they are currently living in (grouped together). On the right side is a panel where all science events which are shown or mentioned on screen pop-up. These come up as a picture which can be then tapped to get a simple textual description of the event. The background of the entire canvas changes depending on which universe the current scene on TV is playing. This should help give the user context about the location of the scene.



The viewers can tap on any of the characters to get a "live" bio, and a generic detail about the character. The live bio updates dynamically as and when the scenes on the TV change, keeping the viewers updated about the latest happenings of a certain character. This is shown below:





Background changes color according to location, characters are also grouped according to location.

In this way, the viewers can view the entire episode along with the iPad app. The interface has been designed keeping in mind that the viewers need to keep their attention on the episode playing on the TV.

Once the viewers are done watching an episode, they can go back and select the "Explore the Schema" option, which will bring them to an interactive visualization of the development of the story world since the pilot episode.



The iPad screen presents a canvas in which the episodes are placed vertically and the two universes are placed horizontally. Storylines run through this schema telling the user when a certain scene occurred in a specific universe within each episode. The users can select specific sub - plots and filter this schema to get more minute details about certain elements of the story. Tapping on any of the events within a specific episode gives the users with a pop - up screen which shows all the scenes within that episode's universe's plotline. This is a short 1-2 minute clip along with a textual description of what happened. Again, if there are any science events that are mentioned they show up on the right hand panel.



I did a heuristic evaluation of this prototype with peers and got some general feedback for the information presented to the user. One of the universal points that came up was the fact that with this current visualization the viewer was being provided details about individual threads within the story, but there was no way to see what happened overall within each episode. This was an important point as there are many episodes in Fringe which are "Monster of the week" type episodes focusing on individual events not related to the main storyline. Hence to give the user that information I came up with a "Magic Lens" solution whereby the users can look at each episode through a "lens" to gain information about the episode. This lens can be dragged along the entire visualization and can give a user very quick information about how the story progressed through each season.

The Magic Lens feature also opened up the possibility of having a "before watching an episode" section to the entire user experience. Viewers can, before they start a new episode, use the lens to recollect information about what happened a couple of episodes back, thus getting the correct context before starting the new episode.



IMPLEMENTATION DETAILS

The iPad web app was developed on HTML5 and JavaScript while using a MySQL database at the backend to hold all the data related to the episodes, characters, universes, and events.

Synchronization between the iPad and the TV were done using a simple polling mechanism whereby the TV sends the current time of the episode back to the server where the iPad is listening for this time and providing the data on the iPad screen accordingly.

HTML5 canvas was used in order to generate the schema for the interactive visualization and the magic lens. The data for all of this was divided into 10 tables each focusing on a specific abstraction such as data about science events, character bios, their appearances on the TV screen, the occurrences in each of the universes, episodic scenes for the schema, and TV sync codes for independent viewing on different devices.

FEEDBACK

The final prototype was evaluated in two ways. Once was performing a heuristic evaluation with peers who were experienced in using iPad companion apps and had watched Fringe. The aim of this evaluation was to determine if the information presented to the user was correctly synchronized with the episode playing on the TV and to see if there was any information that was missing or unnecessary in the app. Some of the important insights gathered from this heuristic evaluation were:

1. The magic lens was a useful way of navigating the show episodically. It was useful as a method to recollect what happened a few episodes back.
2. There could be more, higher levels of detail that could be added to the lens feature, details such as how the characters developed within each episode.
3. Multi touch gestures could be used to provide higher levels of granularity to the visualization. Examples include performing a two finger pinch to "shorten" the episodic schema and bring up a "seasonal" schema which shows the story world as it progresses from season to season. (Performing this gesture on the prototype is currently supported.)
4. Using the color coding scheme (red and blue for the two universes) helped a lot while watching the episode on the TV. It provided a simple way for the user to understand the context of the screen and helped maintain attention on the episode itself.
5. Grouping the characters together on the iPad according to which universe they were currently residing in, was a very simple model, one which users could easily grasp.

I also did an informal study on the affordances provided by the user interface of the iPad app. For this I brought in a couple of users who did not have any prior knowledge of the application or the TV show and told them to use the application. I observed them and told them to think out loud while using the interactive visualization. This short study helped me notice some errors in the UI and fix them. Certain examples of this are :

1. Feedback provided by the arrow buttons used in various areas such as the articles panel, the sync code panel, etc was not apparent to the users. As a result I added visual cues to the buttons so that when the users pressed the buttons they were able to see the buttons animating giving them feedback on their actions.
2. Since this app is running on the iPad, users expected swipe gestures to work for the panels which provided information about the characters and the science events. Example, swiping left / right should show / hide the events panel and swiping up / down should show / hid the character bio panel. I have made these additions to the final prototype.

CONCLUSION

This companion app for Fringe addresses a majority of the questions which arose during the initial user research and user testing. It helps the users maintain context within the show, gets them up to speed with all recent developments, and gives them a deeper insight into the overall story world that the show's creators have made. Dividing the entire user experience into two parts (while and after watching an episode) helps segregate the information into context specific chunks, which helps keeps the UI of the app as simple as possible, thus enabling more attention towards the episode itself.

As future work in this project, one of the more important topics to address will be the use of multi touch gestures to provide the users with deeper levels of information, and ways to present the same information in different lights, such as providing the user with an episodic timeline as well as a chronological timeline of all the events of the entire story. A formal long term usability study of the application should also be done, to see how the application holds up with newer episodes and to see how effective and scalable the design of the visualization is.