

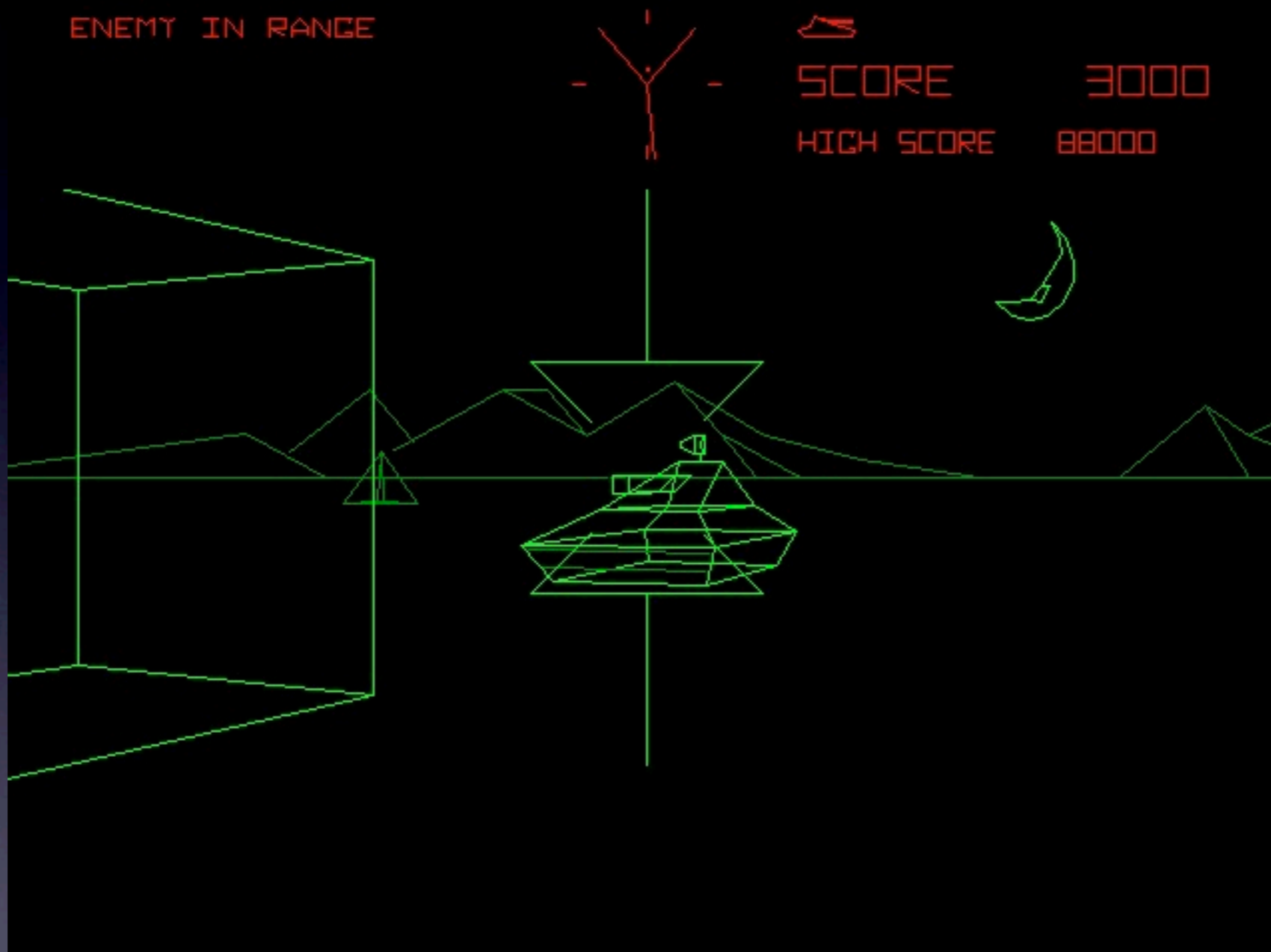
# SERIOUS GAMES

A game designed for a purpose  
other than pure entertainment

Applying game mechanics to  
learning, training, working,  
communicating, using  
in the fields of  
defense, education, health care,  
engineering, politics

- Why “serious?”





- Until recently, serious games mostly meant simulation
- Serious games inherited much of the hype around virtual reality
- Battlezone for Atari, 1980
- A version was developed for training gunners in the Army

“The key for DOD, Homeland Security and others is that they want to increase the frequency that people train, increase the number of people who actually do the training, and lower cost.”

“Studies have shown that if you’re having fun, you’re learning better.”

Julia Loughran  
President • ThoughtLink, Inc.

- What expectations would you have of a training simulation developed by the government or some enterprise-y corporation?
- It would probably suck
- We have different expectations for games
- They push the boundaries of graphics, interfaces, computer interaction, group cooperation

## Rescue Princess Enterprise 2008

The screenshot shows a configuration window for 'Rescue Princess Enterprise 2008'. The 'General' tab is active. The 'Rescuer' field is set to 'Mario', 'Rescued' to 'Peach', and 'Alt' to 'Luigi'. The 'Cost Group' is set to 'GRPPlumbing3A'. The 'Project Rational' field contains the text: 'Blonde, 3'2" stolen by large spike perp. Must save due to financial obligations.' At the bottom, there are three buttons: 'Save', 'Execute Jumping', and 'Cancel'.

Source: [http://lostgarden.com/Mixing\\_Games\\_and\\_Applications.pdf](http://lostgarden.com/Mixing_Games_and_Applications.pdf)

- We have such low expectations for non-game applications
- Work is often the equivalent of “grinding” – linear, explicit instructions, repetitive, boring
- Study observing brain activity while grinding through a tutorial shows that interest level drops off substantially



- If an activity can be learned...
- If the player's performance can be measured...
- If the player can be rewarded or punished in a timely fashion...
- *Then any activity that meets these criteria can be turned into a game.*

Daniel Cook  
Game Designer

# Ribbon Hero



- Microsoft Office is probably as boring as it gets
- Daniel Cook designed a perfect response to his own wager



“You can challenge me on Facebook with  
your elite formatting skills.”

Daniel Cook  
Designer • Ribbon Hero

CONGRATULATIONS!



## Spelling & Grammar



Completed Task



Maximum Efficiency

Reuse what you just learned within the next couple of days to receive an even higher score!

Try Again

Back to Ribbon Hero



 [Connect with Facebook](#)

[Post feedback on prototype](#)

[About](#)

## My Word Achievement



### Points Breakdown

Working with Text 88 / 112



[Challenge List](#)

Page Design and Layout 64 / 128



[Challenge List](#)

Getting Artistic 68 / 136



[Challenge List](#)

Quick Points 26 / 44



[Use these features on your own to earn extra points](#)

You have **8 of 16 PTS**

## SmartArt

Learn how to insert a SmartArt graphic to visually communicate information via graphical lists, process diagrams, Venn diagrams, organization charts, and more. Then, learn how to format the SmartArt with color and 3-D effects.

BEFORE



AFTER



Halfway There!

Use this in Word to get more points.

[PLAY challenge](#)

[Skip](#)





# Game Mechanics

- So what game mechanics can we use in “serious” applications?

# Collecting

- Collecting a complete set: trading cards, badges, etc
- Takes advantage of obsessive-compulsive tendencies









Open Source

- Finally, we have our own – Nerd Merit Badges.





Inbox Zero

- You can buy these!





- foursquare features badges prominently, probably the most exciting part of “playing”
- The whole game consists of pressing a single button!
- Yet it includes nearly all of the game mechanics I’m about to talk about
- What are we learning? What work are we doing? At first it seems pointless...
- But the entire service would be useless if none of your friends felt like pushing the button
- All game mechanics are just encouraging users to press the button, making the service useful





## Crunked

That's 4+ stops in one night for you!



Unlocked by **Brian B.** on Sun Dec 20, 2009 at 10:21 PM @ **House 7** in Cleveland.





## Don't Stop Believin'

♪ Just a small town girl / Living in a lonely world / She took the midnight train going anywhere! ♪  
That's 3 karaoke field trips in a month! Treat yourself by slaying a lil' Bon Jovi.



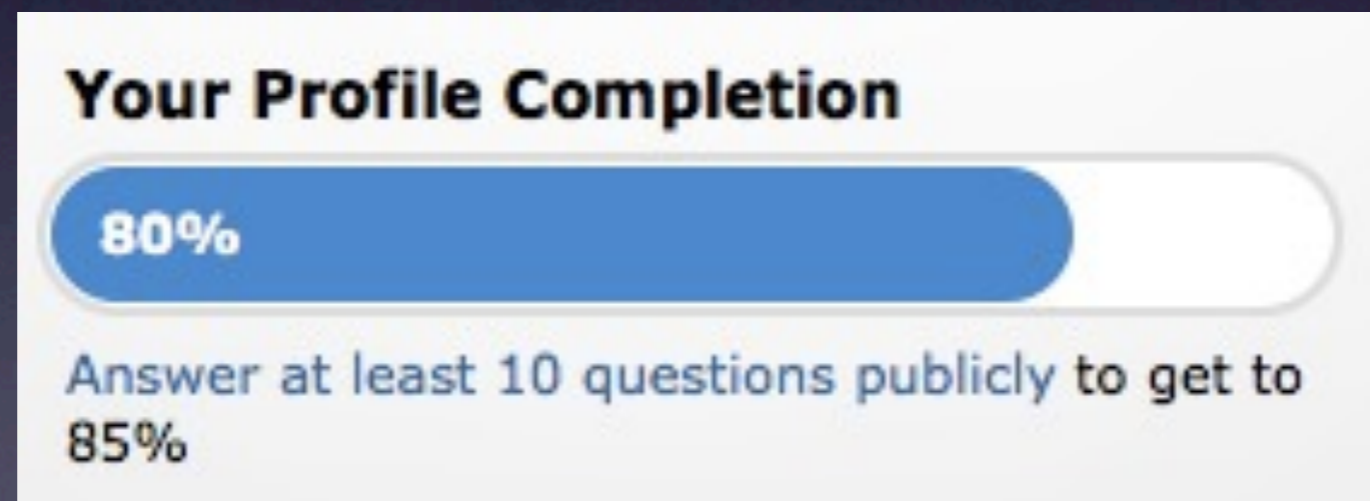
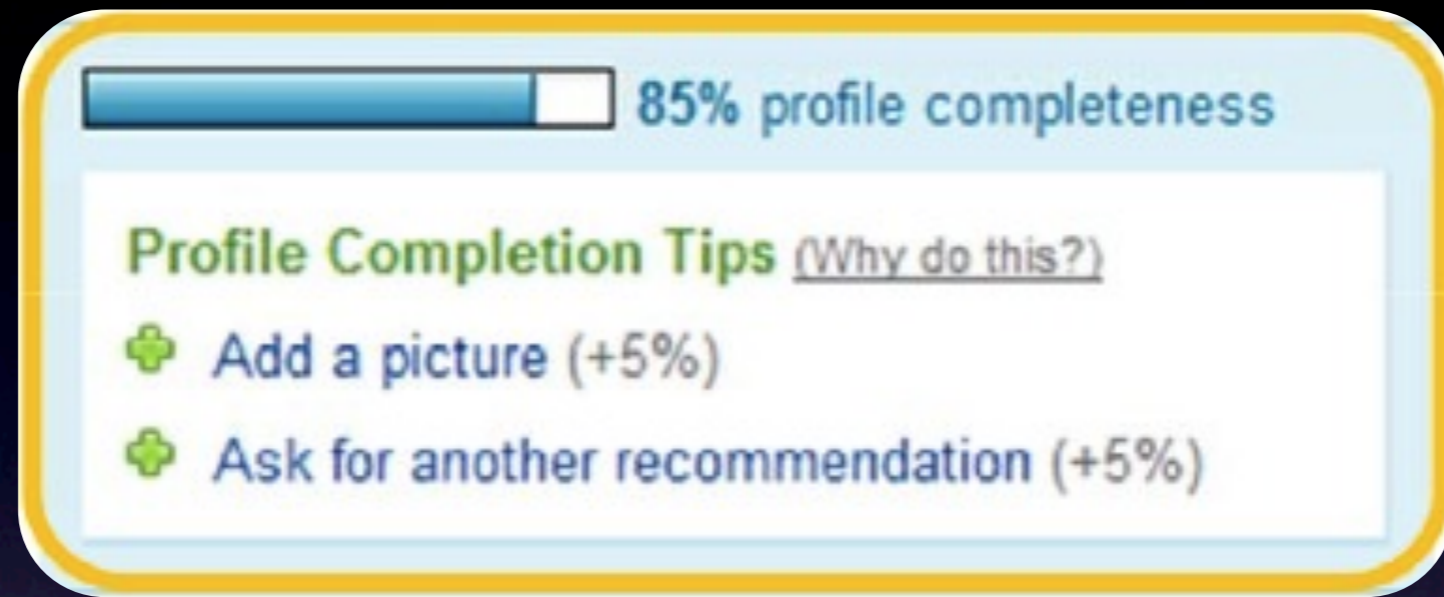
Unlocked by **Brian B.** on Wed Mar 10, 2010 at 9:17 PM @ **Wild Rose Tavern** in Capitol Hill.





# Feedback

- Lets the player know they progressed somehow
- Can be anything, really
- foursquare shows points gained after checking in
- Balloons float up the screen in Ribbon Hero



- LinkedIn and OkCupid give explicit feedback about progress



# Points

- The oldest game mechanic in video games!
- Modern games have evolved beyond points (achievements, etc)



- Points don't always motivate people
- But if you have points, then you can have leaderboards!
- Takes advantage of competitive nature



# Exchanges

- Any interaction between players
- Trading, commenting, gifting
- foursquare pings your friends, allows you to “shout” and leave tips

# Customization

- Personalize the game (to express yourself, show off, or adapt to your needs)
- Customization is an investment in the game
- Investment encourages players to stick around





- You can obviously customize your character in WoW
- But look at the interface of this beginner





- ...versus the customized interface of an advanced player





- As Daniel Cook notes, it looks like a jet fighter's cockpit



# Software Development

- So how can we apply these game mechanics to our domain?



# Unit Testing

- I'll start off with my contribution to the field

twitter

Home Profile Find People Settings Help Sign out

Achievement unlocked: 100% test  
coverage



11:02 AM Jan 25th via web

 Delete



ua6oxa  
Brian Beck

- It started as a joke



**Source**

Commits

Network (1)

Fork Queue

Issues (0)

Down

Switch Branches (2) ▾

Switch Tags (0)

Branch List

Unlock achievements when running tests with nose, unittest, or Django! — [Read more](#)

<http://exogen.github.com/nose-achievements/>

- But quickly became a reality

# Night Shift

- Here are some examples of the achievements granted for unit testing...



# Night Shift

Make a failing suite pass  
between midnight and 5am

Happy Ending



# Happy Ending

All tests in the suite fail...

# Happy Ending

All tests in the suite fail...  
...except the last



My God, It's Full of Dots

My God, It's Full of Dots

At least 2,001 passing tests



100% Code Coverage

# 100% Code Coverage

Level  $x$

100% coverage of  $2^{x+7}$  statements



# Achievements for...

- Passing tests
- Code coverage
- Fast tests
- Large codebase or test suite
- Working late or being on time
- Using testing libraries
- Refactoring code

- What game mechanics does it use?
- Collecting: unlock all the achievements
- Feedback: per-achievement ASCII art announcement is printed when unlocked
- Coming soon: points, leaderboards

[exogen.github.com/nose-achievements](https://exogen.github.com/nose-achievements)

- Even if you're not the person writing the tests, this will get people to run the test suite more!



# Issue Tracking

- I've seen people discussing and working on this
- But when I tried finding it again, it seems nothing has come of it yet
- The rest of my talk is a request: make this stuff!

- Fixing a bug / closing a ticket
- Submitting a patch
- Filing a bug report
- Updating an old ticket
- Providing lots of details
- Being assigned a ticket
- Using filtering capabilities

- We can reward users both for learning the system and for skillfull participation
- Our goal is to encourage people to do things that benefit our software



# Version Control

- Checking out a repository
- Committing a change
- Creating a branch
- Tagging a release
- Merging branches
- Resolving conflicts
- Writing detailed commit messages

- Remember the bit about brain activity during a tutorial?
- I will never read a Git tutorial, “learning Git” is not my primary goal – “using Git” is!
- Learning by using is exploratory learning: non-linear, interactive, possibility of failure
- This is easily possible with Mercurial extensions
- There’s a funny extension out there: “how do you look when merging fails?”



# Text Editing

# Debugging

# Profiling

# Releasing

- What else do we do as software developers?
- Text editing game: show before & after buffers, award points for least number of keystrokes to perform the transformation
- We've already got one game mechanic covered with text editing
- Customization: our IDEs are often highly customized (vimrc, etc)
- It's an investment in our IDE, programming language, and software in general

- Why follow through with a project that started as a joke?
- In my experience, stupid projects get the most attention!
- If you're going to be looking for a job, attention is good
- Unit Test Achievements resulted in job leads, Wired interview, lots of followers



# Questions?

- Thanks!