The Names People Play: Exploring MMOG players' avatar naming conventions

Aaron Lawson, STAR Lab, SRI International
Phone: +1-650-859-4356
aaron@speech.sri.com

Nick Taylor, Dept. of Communication, NCSU
nickttaylor@gmail.com

Just call out my name…

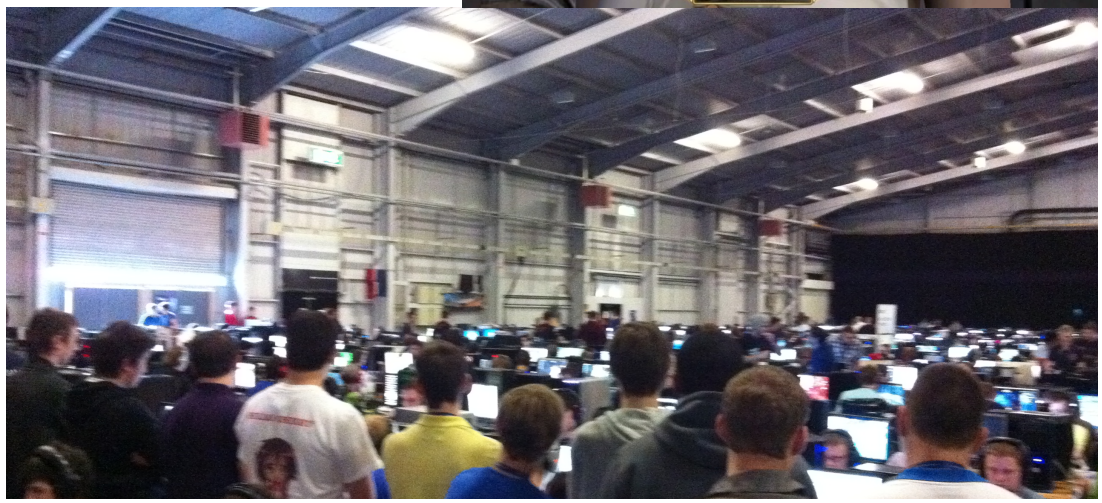
Aaron Lawson, STAR Lab, SRI International
aaron@speech.sri.com

Jennifer Jenson, York University
jjenson@edu.yorku.ca

Suzanne de Castell, Simon Fraser University
decaste@sfu.ca

Tamara Peyton, York University
tspeyton@gmail.com

Nick Taylor, NCSU
nickttaylor@gmail.com



This material is based upon work supported by the U.S. Air Force Research Laboratory under contract number

Context:
Virtual Environment Real User Study (VERUS)

• Three-year study (concluding Fall 2012) of the connections between in-game MMOG behaviors and practices, and players ‘ ‘real life’ characteristics

• Collaboration between Simon Fraser University, York University, Nottingham University Business School, and SRI International

• approx.1500 participants in university-based labs, public gaming events, and public schools

Challenge:

Can we reliably infer real world characteristics (age, gender, education level, capacity for leadership) from in-game activities and behaviors?

The VERUS assemblage:
For 1500+ participants, recorded play in at least one game
Data on players' (multiple) avatar names from multiple sources

contexts	university labs	LAN events	schools
participants	students & their peers	dedicated gamers	grade 4-8 students
games	Guardian Academy (instrumented, browser-based MMO)		
	WoW / Rift / EVE Online		
research tools	online surveys / instrumented gameplay / fieldnotes		
	'travelogues'		
	external & screen AV		
analysis tools	SPSS / grounded theory coding / quantitative chatlog & event analysis		
	AV analysis		

In this study…

- 144 females
- 393 males
- 537 total players
- 1457 avatar names

- Intensive analysis of 61 lab-based participants' first-time avatar creation and naming experiences in Rift

Avatars and Gender

- In the VW, every participant chooses an avatar or character, which can be either male or female.
- Avatar gender choice is a big predictor of RW gender, at least in this study.
- Our goal in this part of the study was to use the avatar name as a source of data to identify RW gender using phonological factors, sound symbolism research, semantic factors, etc.
- Additional goal is to use the features developed for gender ID based on avatar names to identify the gender of those whose RW gender and VW gender is different.

Avatar Gender Rule Accuracy

- FEMALE: ends in "a” 45/53 (85%)
- MALE: ends in back vowel BW 17/21 (81%)
- FEMALE: ends in "y" or y is female 23/35 (66%)
- MALE: ends in "er" or 'er' 9/11 (82%)
- MALE: ends in back or alveolar stop 44/59 (75%)
- MALE: ends in any consonant or consonant 94/138 (68%)
- MALE: ends with fricative consonant or fricative 17/19 (90%)
- MALE: Begins with capital 102/160 (64%)
- MALE: contains 'x' or ’z (79%)

Gender Switchers

- Let's apply these rules to participants whose RW gender and VW gender are different
- Can we still detect the RW gender? Do they change their avatar naming behavior when they change gender?

- Results:
  - Applying the same rules we find that the pattern is largely the same as with matched gender avatars
  - Female rules: precision: .71, recall .71
  - Male rules F1 precision: .76, recall .74

Avatar Naming across Virtual Worlds

- Avatars are the primary means by which players navigate and interact in most virtual worlds.
- Players choose what to name their avatars and this allows for a certain level of personal continuity and identity across virtual environments.
- One might expect that this could take the form of re-using names, or devising names that share some elements in common with past avatar names.
- In this study quantitative analysis was performed to determine the extent to which avatar names maintain cohesion for the same player across multiple sessions.

Avatar Naming Example

- This user shows many of the kinds of 'traveling' behavior we identify (altered -not actual avatar names)
  - lanuk129|Palabill
  - lanuk129|UncleBill
  - lanuk129|Itfunclebill
  - Lanuk129|2tfluffy
  - lanuk129|Im2tfrost
  - Lanuk129|2tbehindyou
  - lanuk129|Biiillyy
  - Lanuk129|Ironusensis
  - Lanuk129|Killsforfood
  - lanuk129|Priestigans

Gender	Avatar Names	Avatar Comparisons
F	357	127,092
M	1100	1,208,900
Total	1457	1,335,992

	% Identical Name Male	% Identical Name Female
Same Participant	2.8%	2.4%
Random	0.9%	1.7%

	% Completely Different Name (No N-grams Shared) Male	%Completely Different Name Female
Same Participant Uni	9.6%	6.2%
Random Uni	15.0%	14.5%
Same Participant Bi	54.1%	52.1%
Random Bi	79.8%	74.5%

Procedure

- Looked at several ways of measuring the relationship between names across sessions
- Wanted to make sure we captured several phenomena
  - Shared parts of words (‘dogman’ and ‘dogboy’
  - Anagrams (‘god’ and ‘dog’)
- Important to normalize measures where possible so that length of names wasn’t an issue
- Goal is to quantify the difference between all names from the same RW person and all names from different RW persons.
- Coverage of different types of similarity will tell us how names are related, but has limitations (e. g. that ‘man’ and ‘boy’ both imply maleness)

Quantitative Measures

- Levenshtein Distance (minimum edit): the normalized cost of converting one string to another
  - 'dog' to 'cat' cost is 1, since every character must be converted
  - 'dog' to 'god' cost is 0.66
- Unigram similarity: normalized difference in *characters*
  - 'dog' and 'cat' similarity is 0
  - 'dog' and 'god' similarity is 1
  - 'dog' and 'dog' similarity is also 1
- Bigram overlap: average number of shared bigrams between two names
  - 'dog' and 'god' have 0
  - 'aaron' and 'aaron2' have 4 (share 'aa', 'ar', 'ro', 'on', don't share 'n2')

Results: Avatar Naming Regardless of VW

Gender	Bigrams per Name: Same Participant	Bigrams per Name: Different Participant
F	2.9	0.66
M	3.4	0.53
Ave	3.2	0.59

	Levenshtein Distance for Same Participant vs Different	Unigram Similarity for Same Participant vs Different
Ave	17% smaller	25% greater

Conclusions

- Avatar names became a major source for interesting research and provided surprising features gender
- Avatar naming conventions in virtual world environments often follow sound-symbolic patterns that mirror gender and language findings in the RW
  - This was true even for avatars whose RW and VW gender differed
- Avatars were also used to maintain continuity across VW environments via devices such as repetition, metonymy and anagrams
- There is much more to be learned from avatar names, the semantic and intertextual relationships are still to be investigated; pilot study is looking at using Wikipedia and Urban Dictionary to relate names though semantics and co-reference.