Discovering and Predicting Video Game Experiential Genres

MACS 30200 Project

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What are video game genres based on experiences in the games?

With the new genres,
how to understand video games better?

Experience and Video Game

Experience

One feels or is affected by to feel.

Video Game as an Experiential Product

Products dominantly emphasize on the consumption experiences.

- Cooper-Martin, E. (1991). *Consumers and movies: Some findings on experiential products*. NA-Advances in Consumer Research Volume 18.

Playing Video Games

A life projection that different players are motivated to seek out in the form of in-game experiences.

- Bartle, R. (1996). *Hearts, clubs, diamonds, spades: Players who suit MUDs*. The Journal of Virtual Environments, 1.
- Ryan, R. M., Rigby, C. S., & Przybylski, A. (2006). T*he motivational pull of video games: A self-determination theory approach*. Motivation and Emotion, 30(4), 347–363.

Why Bother?

Form	Experience
Shooter	Discover new world
Strategy	Unfold storyline
RPG	Collect virtual items
Action	Experience a real war
Adventure	Vehicle Racing
Fighter	Destroy a city
Puzzle	Coop with teammates
Card	Lead a squad

VS

All First-person Shooter Games

Similar Experience?

Coop with teammates

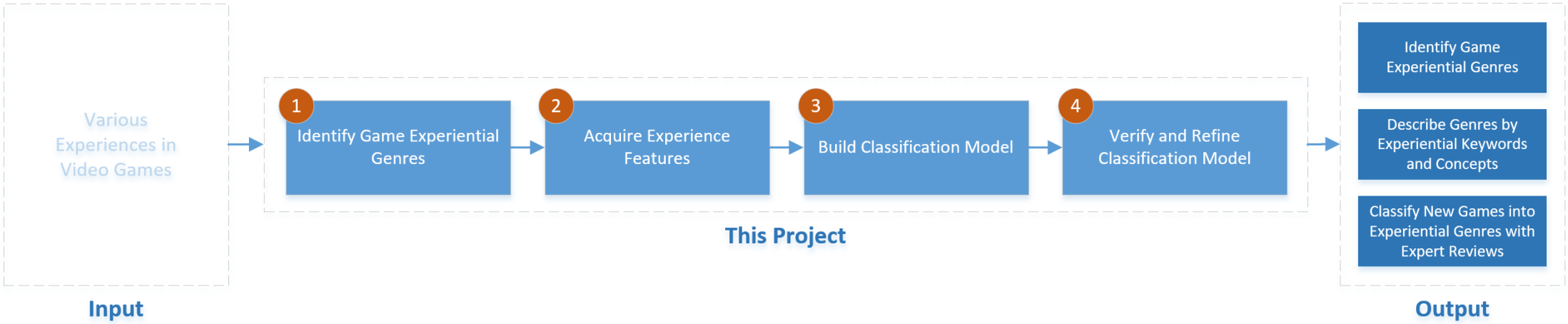
Experience unreal SWAT operations

Unfold storyline

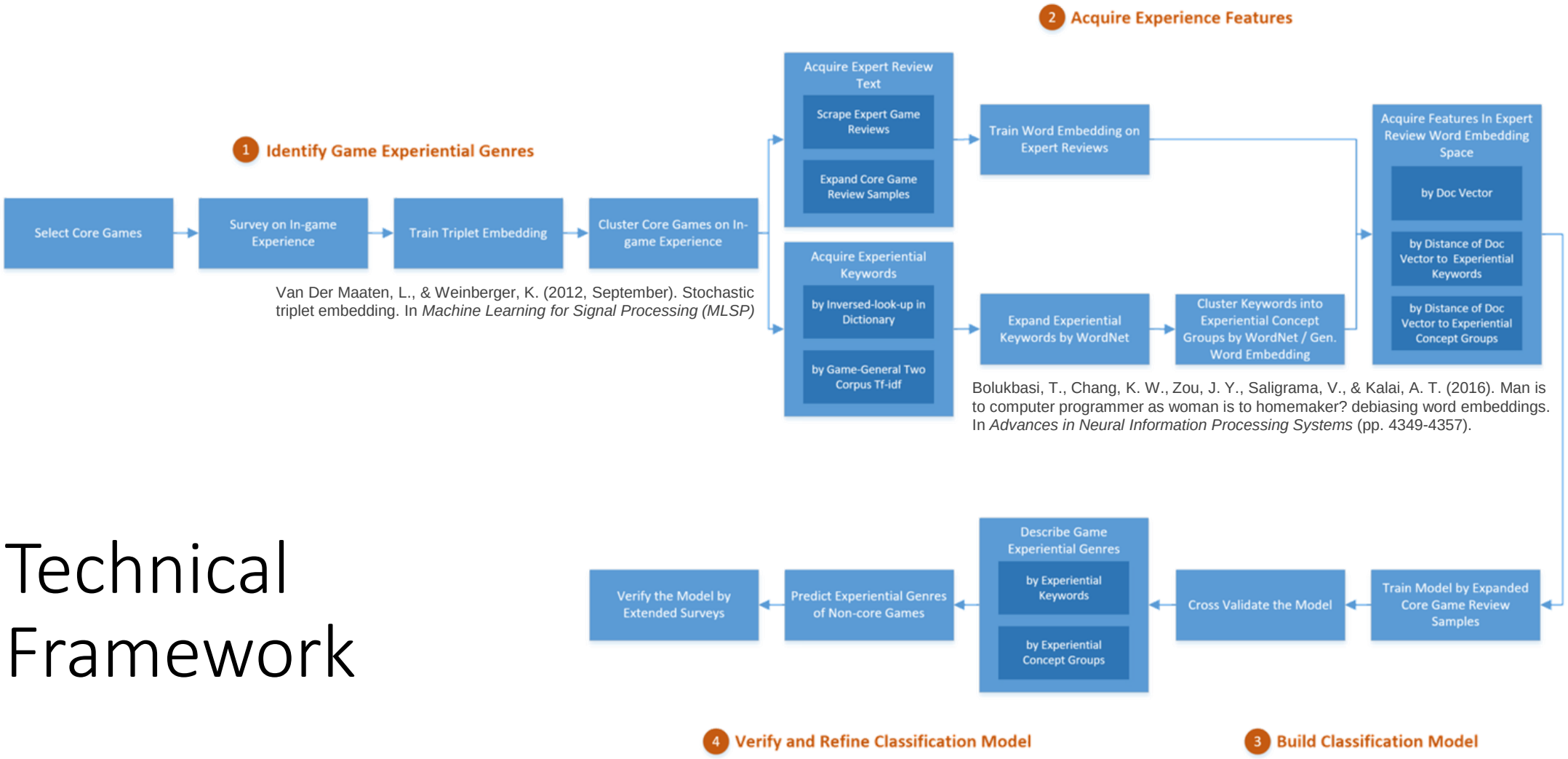
Coop with teammates

Experience real war

Project Overview



Technical Framework

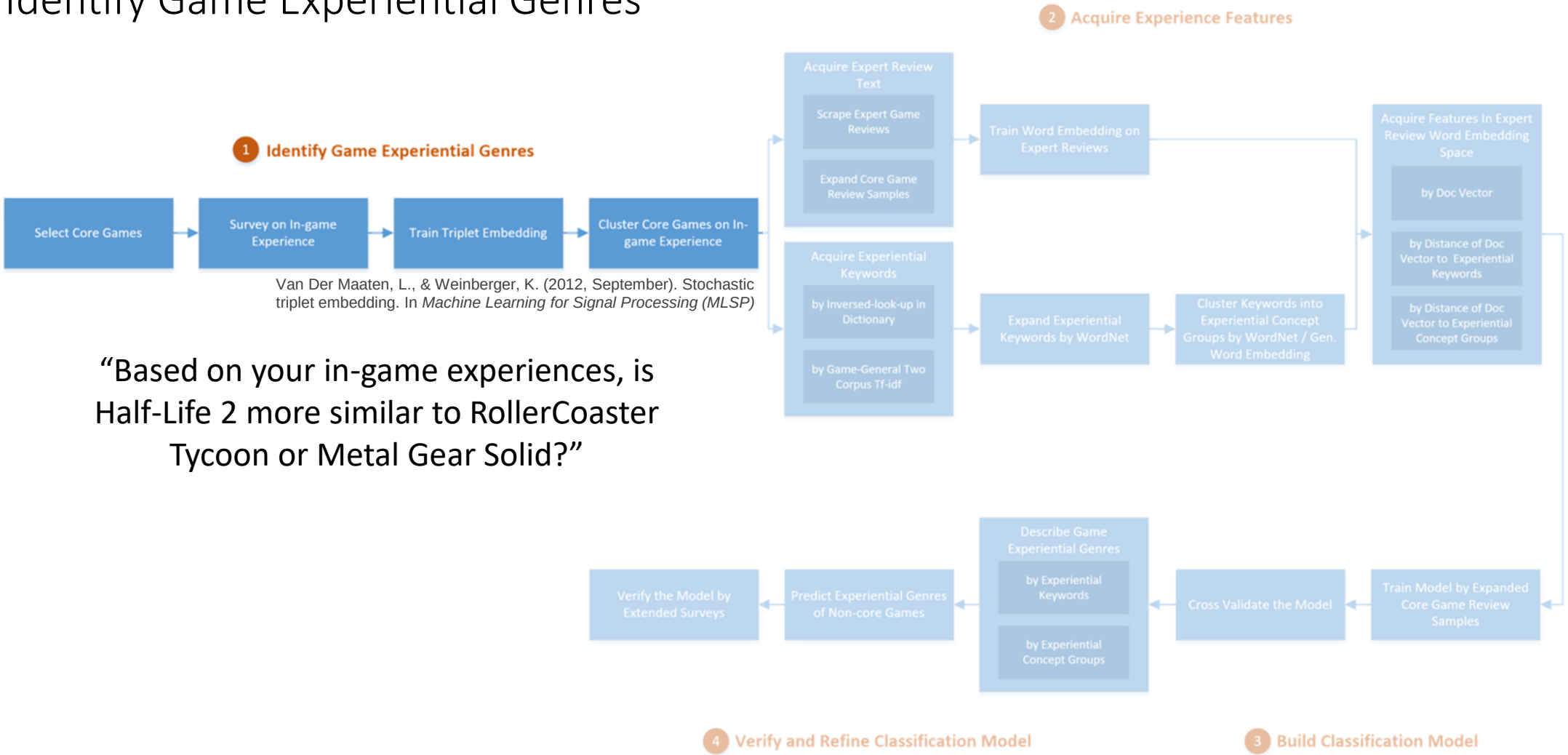


Van Der Maaten, L., & Weinberger, K. (2012, September). Stochastic triplet embedding. In *Machine Learning for Signal Processing (MLSP)*

Bolukbasi, T., Chang, K. W., Zou, J. Y., Saligrama, V., & Kalai, A. T. (2016). Man is to computer programmer as woman is to homemaker? debiasing word embeddings. In *Advances in Neural Information Processing Systems* (pp. 4349-4357).

Technical Framework - 1

Identify Game Experiential Genres

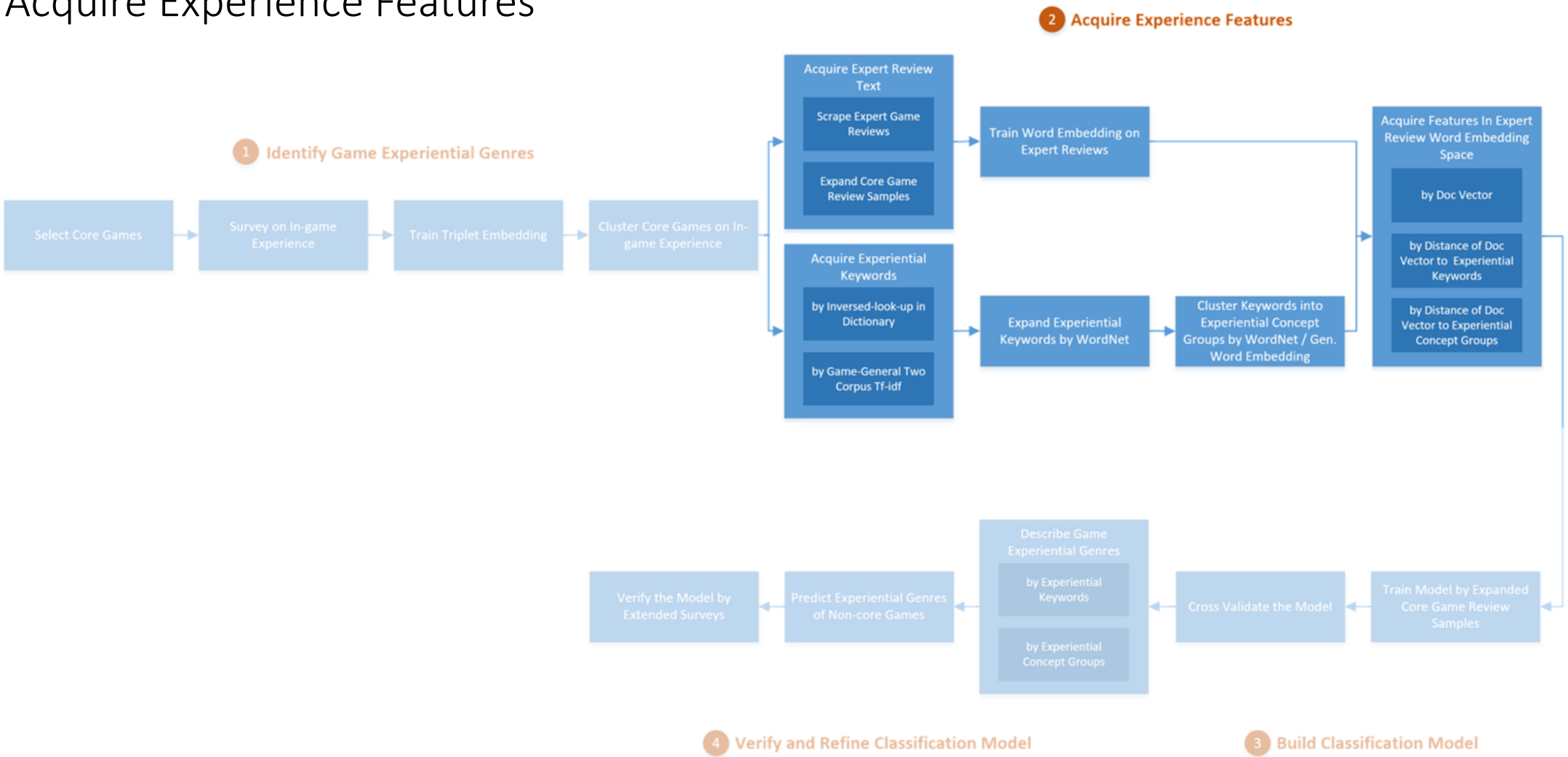


Van Der Maaten, L., & Weinberger, K. (2012, September). Stochastic triplet embedding. In *Machine Learning for Signal Processing (MLSP)*

"Based on your in-game experiences, is Half-Life 2 more similar to RollerCoaster Tycoon or Metal Gear Solid?"

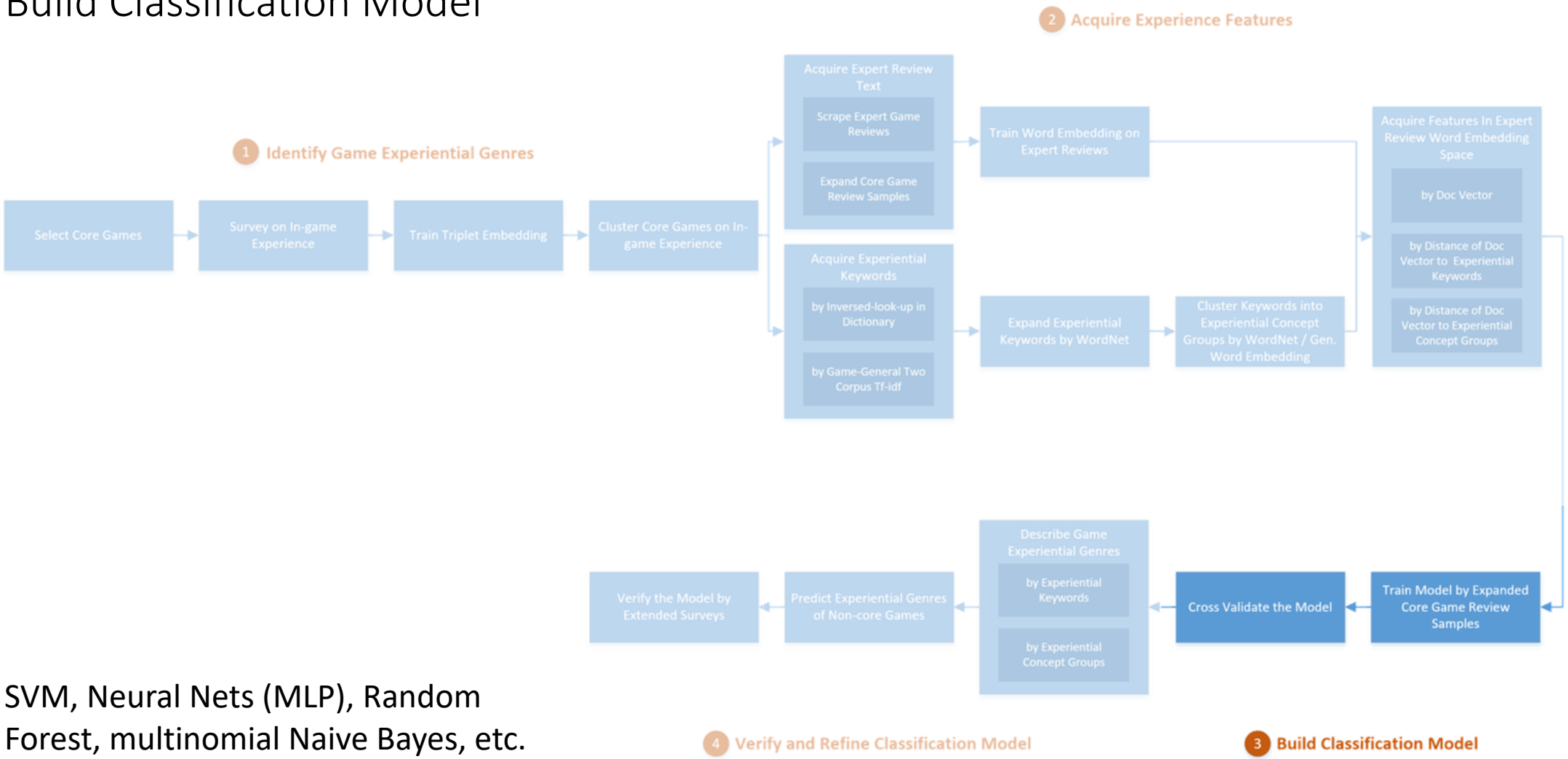
Technical Framework - 2

Acquire Experience Features



Technical Framework - 3

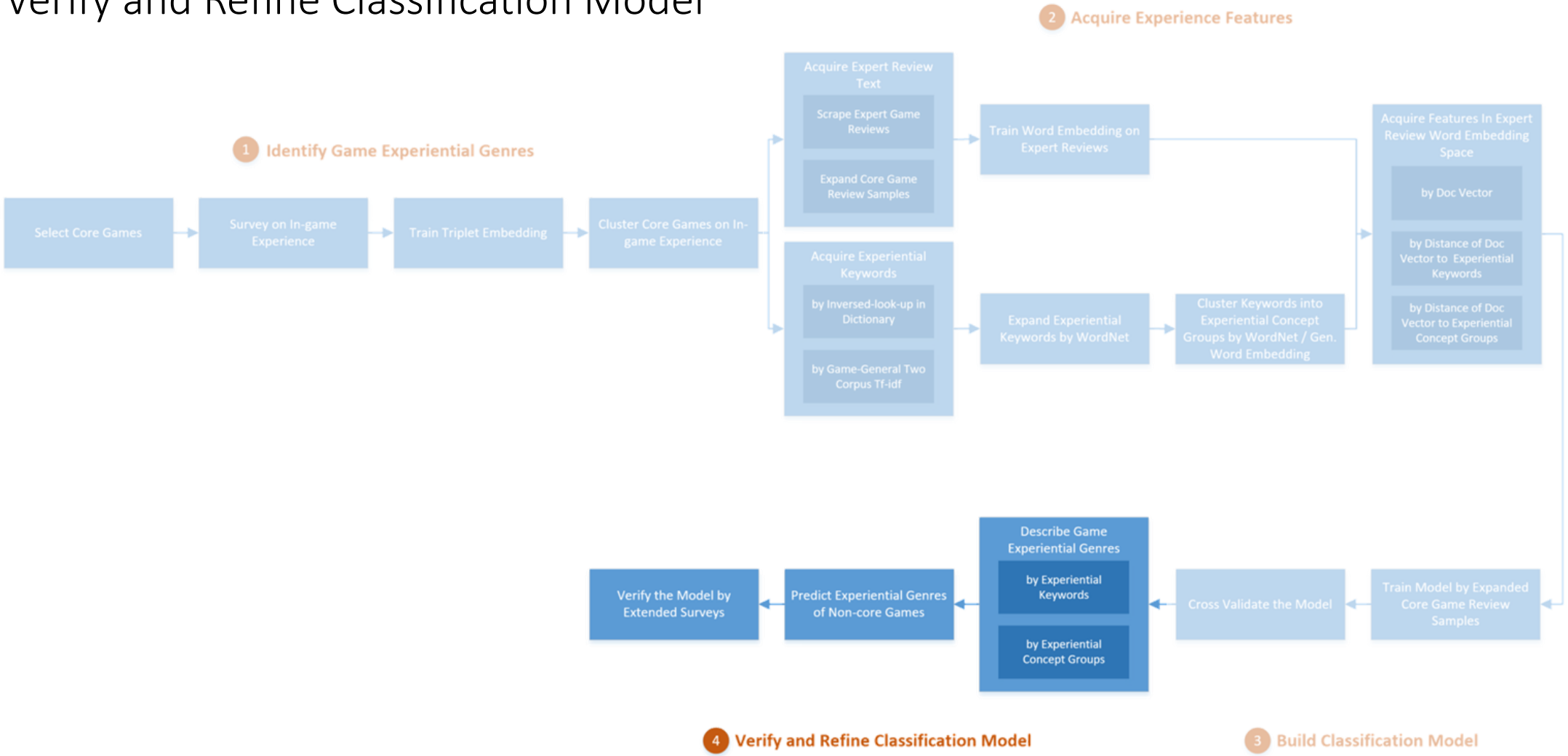
Build Classification Model



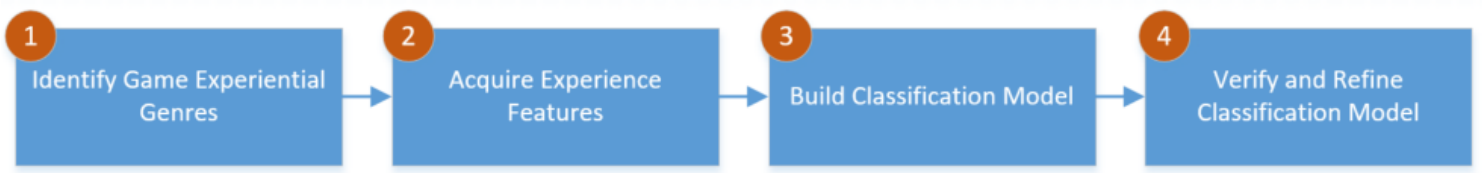
SVM, Neural Nets (MLP), Random Forest, multinomial Naive Bayes, etc.

Technical Framework - 4

Verify and Refine Classification Model



Data



Stage 1: Triplet Survey

- Hand-picked 25 core games
- MTurk triplet survey with 135 respondents and 2,690 pair-wise comparisons

Stage 2 & 3: Expert Review Corpus + Experiential Keywords

- 11,022 expert video game review articles scraped from Gamespot
- 16,643,915 words
- 1,510 words per review on average
- 1,168 keywords from reverse look-up in dictionary

Stage 4: Validation Survey

- Expand to 40 core games
- Mturk survey with around 200 respondents

Result & Application

1. Identify Video Game Experiential Genres
2. Describe Genres by Experiential Keywords and Concepts
3. Classify New Games into Experiential Genres with Reviews

For Video Game Designers

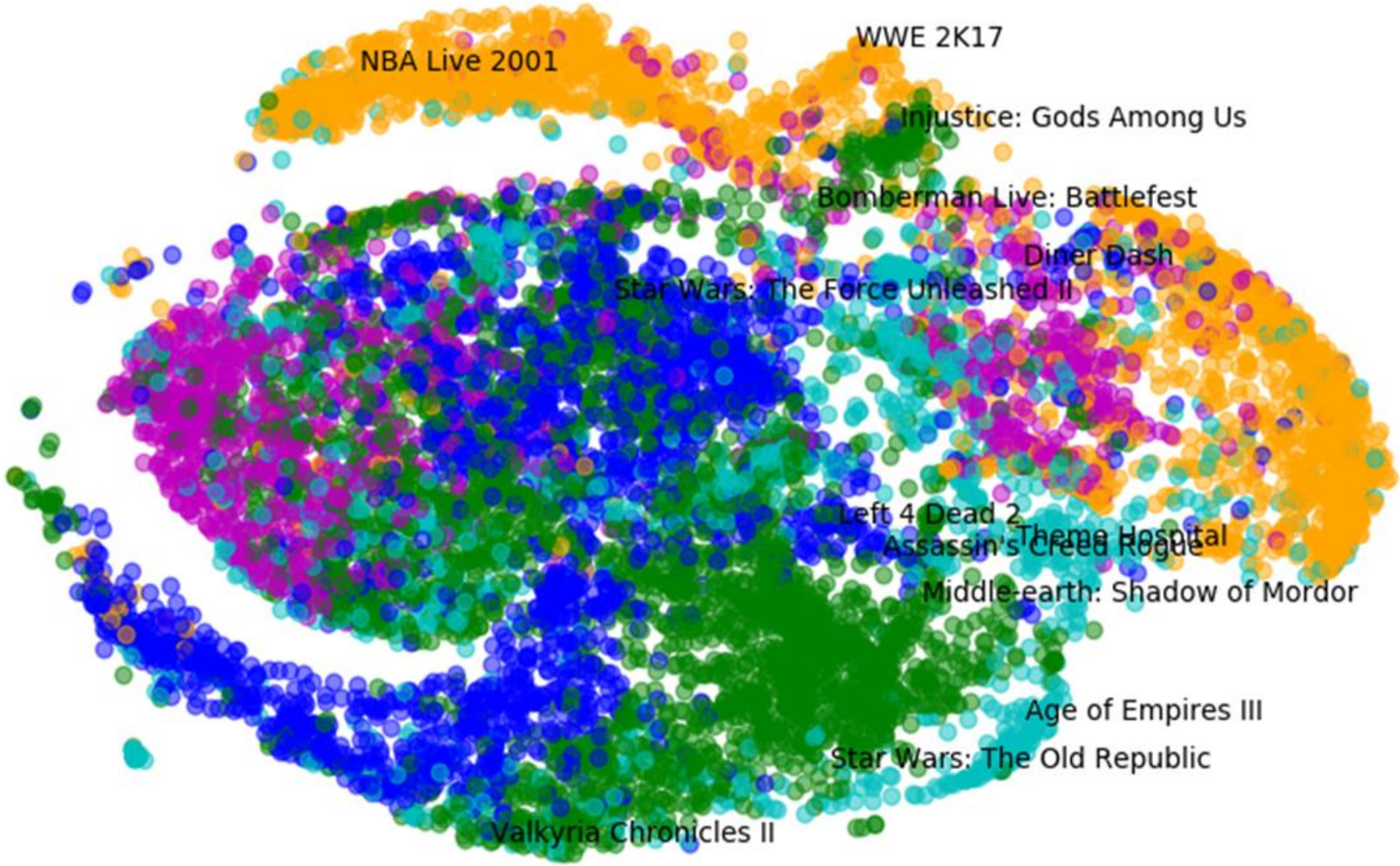
As a research tool for understanding products and creating better in-game experience

For Video Game Players and Publishers

As a recommendation system based on similarity of in-game experience

For Movies, Music, Novels, and Other Experiential Products

Same applications!


NBA Live 2001
WWE 2K17
Injustice: Gods Among Us
Bomberman Live: Battlefest
Diner Dash
Star Wars: The Force Unleashed II
Left 4 Dead 2
Theme Hospital
Assassin's Creed Rogue
Middle-earth: Shadow of Mordor
Age of Empires III
Star Wars: The Old Republic
Valkyria Chronicles II