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Statement of Purpose

Since my freshman year of high school, I've been creating, manipulating, and destroying worlds with my fingertips as the medium and software as my tool. As soon as I started, I realized that being the creator of worlds is something I had a passion for. No other field of study or work allows the same kind of quick turnover from creativity to product. I have held onto computer science ever since.

In order to satisfy this need to develop, I've enrolled in both the introductory graphics and realtime 3D graphics classes at Cal Poly. I enjoy graphics itself, but creating a pretty scenery doesn't complete a world. Worlds have inhabitants, beings who interact with the world and with each other. I've come to realize that in order for me to see my dreams come true I will need to study artificial intelligence. I plan to do this with my remaining year at Cal Poly as an undergrad.

My next plan of action would be to integrate the two concepts: graphics and AI, and apply it to the field of video game AI. I envision a world where non-player characters (NPCs) are indistinguishable from players. The field of video game AI has so much room to grow, and I would like to be part of that growth.

I'm inspired by the University of Texas AI, developed for the Unreal Tournament 2004 first-person shooter, which fooled judges into believing it was more human than actual human players. The bots displayed spatial awareness including movement, combat skills, and combat strategy. By making smarter NPCs, we can make better and more realistic video games.

http://www.utexas.edu/news/2012/09/26/artificially-intelligent-game-bots-pass-the-turing-test-on-turing%E2%80%99s-centenary/

A possible side effect of working with video game AI could be advancements in the field of actual AI. Video games push the field of graphics to develop better graphics technology. It is my vision to also make video games push the field of AI to develop better AI technology. I'm unhappy with the limited state of current products like Siri. Science fiction depicts a future where we'll be able to interact with robots as if they were regular humans. Maybe the precursor to this future is a virtual world where we can interact with NPCs as if they were players.

Currently, video game AI is a hack. Simple tricks are given to NPCs to simulate intelligence for the sake of optimum performance. This allows the processing to focus on better graphics. I believe that if we balance these two parts of video games to allow decent graphics with enough processing power leftover to be used on smart NPCs we will create a better video game experience. Video game AI introduces variance into games. NPCs based on powerful AIs can reinvent a gaming experience. For example, in a first-person shooter most NPCs wait until the player comes to fight them. A more interesting gaming experience would be if the player was being chased by a smart NPC. The NPC's methods of chasing would vary between iterations of the game.

I want to spend another year at Cal Poly to earn a Master's degree while advancing the field of AI and video games. I believe that video game AI has room for growth but needs more support. I would do my Master's thesis on research in developing better AIs, possibly through a game world I've created or layered onto an existing structure like Sims.