

Undergraduate Thesis Prospectus

Innovation in Gaming Technology: A Proposed Computer Science Course  
(technical research project in Computer Science)

The Gun Control Controversy in Texas  
(sociotechnical research project)

A Thesis Prospectus Submitted to the  
Faculty of the School of Engineering and Applied Science  
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Bachelor of Science, School of Engineering

by

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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## **General Research Problem**

*How do complex social groups work together to further their purpose?*

Throughout school, students are discouraged from working together. Collaboration may be interpreted as cheating, and punished as such. Yet collaboration is essential, both in professional life and in social movements (Shani, 2016). Collaboration can improve the work ethic and improve performance (Carr and Walton 2014).

## **Innovation in Gaming Technology: A Proposed Computer Science Course**

*How may CS4774 Machine Learning and CS4710 Artificial Intelligence be combined to teach students intelligent and reactive game agents?*

This is a technical report written under the Department of Computer Science, with technical advisor Daniel Graham. Video games are a fast-growing field of development which wields significant market power, with video game industry revenue estimated at \$159 billion at the end of 2020. Within the University of Virginia's (UVA) CS electives, Artificial Intelligence focusses on AI agents in gaming, yet doesn't expand on highly developed agents. A new course offering, Reactive Game Agents, would combine elements from the existing classes CS4710 Artificial Intelligence and CS4774 Machine Learning, to describe how machine learning can be used throughout the development of games. This course could be used teach students the process to make intelligent game agents which are capable of learning over time from their environments and from user input. Additionally, it could be used to introduce students to modeling machine learning systems to create dynamic worlds, render dynamic graphics, or other machine learning game development concepts. This is both possible and desired as shown by UVA's redesign of the current Bachelor of Science CS curriculum which combined classes from a previous

curriculum to make them more efficient (UVA, 2021). The proposed course would teach students how to make intelligent game agents and would put students on the cutting edge of game technology.

## **The Gun Control Controversy in Texas**

*How have gun rights advocates in Texas organized to limit gun control legislation?*

“Come and take it,” a popular slogan, used in various ways, and has symbolized defiance against authorities that threaten a right or privilege. For Texans, who proudly display flags with the slogan plastered on, it has come to be used by gun rights activists to display their defiance against gun control laws being implemented. In the United States, gun control policies have been controversial and sometimes divisive. Texas is one of the states with the strongest group of gun rights advocates. As a model to those who desire gun rights, how have advocates in Texas attempted to influence and limit gun control legislation?

Participants include organized gun rights advocacies within Texas like the Texas State Rifle Association, Texas Gun Rights, and Texas Gun Sense. The Texas State Rifle Association (TSRA) is an advocacy committed to “Protecting the lawful possession and use of firearms” and providing its members with training and supporting gun activities, such as hunter education or shooting sports (TSRA, 2020). TSRA’s legislative director, Andi Turner, has claimed that there is no evidence that permitless carry “has ever led to an outbreak of shooting” (Turner, 2021). In one of a series of papers published by Turner to inform citizens and legislators make informed decisions, she also asserted that there is “often bias built into the phrasing of poll questions” (Turner, 2021). Texas Gun Rights is a self-proclaimed grassroots citizen organization that opposes gun control. It lobbies legislators, and urges candidates to support gun rights and oppose

gun control legislation. The Executive Director, Chris McNutt, communicated his pride to the group's members that the fight for Constitutional Carry has finally paid off and that the group had finally managed to "tear down the persistent roadblocks" presented by the "Austin political establishment" (McNutt, 2021). The TSRA and Texas Gun Rights organizations are both strong proponents for the rights of citizens to carry guns with no restrictions.

On the other hand, Texas Gun Sense is a grassroots citizen organization, though their goals are more tentative about gun policy, with their group pushing for "common sense, evidence-based policies to reduce gun injuries and deaths" (Texas Gun Sense, 2021). Texas Gun Sense recognizes the citizens' rights to own guns, yet its executive director, Gyl Switzer, has expressed caution about the drastic loosening of gun policies as they may lead to loss of life, as "Even one loss is a problem" (Martin, 2021). It is willing to restrict access to guns, though not fully, to maintain the people's safety.

Participants also include national gun rights groups like the National Rifle Association (NRA) and national gun control groups like Moms Demand Action. The NRA is a gun rights advocacy group which is one of the most prominent gun rights lobbying organizations. It also sponsors programs that instruct gun owners in firearm competency and safety. At the signing of a bill which would allow law-abiding citizens to carry handguns for self-defense without a license, Texas Governor Greg Abbott was joined by NRA CEO Wayne LaPierre, along with NRA President Carolyn Meadows. At this occasion, LaPierre said he was honored to be at the signing of a bill which "further(ed) these rights for all Texans" (NRA-ILA, 2021). Opposing gun rights, Moms Demand actions is a "grassroots movement of Americans fighting for public safety measures" (Moms Demand Action, 2021). After the new constitutional carry law was passed,

Moms Demand Action volunteers expressed concern about the recent release of restrictions, saying they were “concerned about the safety of our community” (Briggs, 2021).

Gun control has generally been framed as a struggle between individual rights and public safety. Zick (2020) studied the main frames that the proponents for and against gun control use, including what type of language they used and how they interpreted the Second Amendment. This approach indicates how the opposing parties further their goals. With constant debates on the efficiency of gun laws how they affect violence, there are also studies on the relation between gun violence and restrictive versus looser gun law areas. For instance, Duggan et al. (2011) studied the effects of gun shows in Texas and California on the local gun crime, the results can be useful to both sides.

To succeed, these groups must influence others. Researchers have investigated attitudes about guns and how people seek to influence them. For instance, Shapira, Liang, and Lin (2021) found that peoples’ attitudes to guns develop through their lives, and they investigate how this relates to their beliefs of gun policies. Wasike (2017) found that arguments transmitted via online news articles were more persuasive than tweets. Some researchers also investigated how evidence is gathered for both sides of the gun control debate, like Carlson (2020) who discussed how people have inflicted a bias on research.

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