

Proposal for a New Course in Computer Science and System Engineering:

Advanced Design Techniques

(Technical Report)

Analyzing the Arms Race between Anti-Cheat Developers and Cheat Developers

(STS Research Paper)

An Undergraduate Thesis Portfolio

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by

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## Socio-Technical Synthesis

At the University of Virginia, there are limited opportunities for students to explore and experience software development-related internships. Even after the transition to a new computer science curriculum, professional workplace simulation is rather lacking at the university, despite the fact that the majority of pathways for computer science majors are through college-level internships. A new proposed course, Advanced Design Techniques, offers to fill in this gap and fix weaknesses from existing computer science courses, like CS 3240. This course focuses on the communication and collaboration skills that come with working in an interdisciplinary team, designing both a final deliverable that is both digital and physical.

On the other hand, there exists a major problem within the gaming industry that plagues both the players and the producing companies for years: cheating in video games and the costly arms race between cheat and anti-cheat developers that come with it. Solving this problem starts at the root cause of the reasons why cheating exists in video games in the first place. Understanding the motivation of cheatings in the online landscape and subsequently, the reasoning for the escalation of the aforementioned technical arms race is important to explore and determine potential neglected actors that could lead to a solution that satisfies the incentives of cheating instead of enforcing anti-cheats.

While the technical research of this thesis has been changed due to the changing computer science curriculum at the University of Virginia, the original goal for the technical element of this thesis was to research and design a method of transitioning from a client-sided to a server-sided gaming system. This basically means transitioning to a completely new and more secure environment for gaming that is significantly more difficult to be penetrated by cheats.

This would allow for a discussion and comparison between a technical solution and a more social solution for this arms race problem.