Thesis Project Portfolio

Entrepreneurial Applications of Computer Science

(Technical Report)

Analyzing factors that influence post-graduate decision

(STS Research Paper)

An Undergraduate Thesis

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Executive Summary

Computer Science (CS) as a field of study has been constantly gaining momentum for a variety of reasons. The prospects of a high paying job, the versatility of the degree and the plethora of tech-based role models all have contributed to the rapid growth of CS programs and the creation of different occupations related to the field. As a result, current perceptions of CS as a field of study have been vastly altered. Current CS students are hyper-focused on entering the industry for high paying tech jobs, neglecting different potential paths, and resulting in a highly competitive and oversaturated job market. The main goal of the following papers is to examine different choices that students can take to differentiate themselves from other students after completing their undergraduate CS degrees.

The technical paper explains how CS students can apply their knowledge in an entrepreneurial environment through a course offered by the UVA CS department. The paper looks at the current CS curriculum to identify potential gaps and offer a solution that allows students to understand the business, administrative and development aspects of a startup company. Details of a general lesson plan are laid out, which consists of three main parts: A semester-long project simulating the creation of a startup company, important lecture topics to cover throughout the semester and a guest speaker section that provide students with an opportunity to interact with entrepreneurs with CS backgrounds. The goal of this paper is to present a different perspective on CS, allowing students to gain insights on how entrepreneurship can be incorporated into the field within a low stakes environment, without having to commit to an additional major or minor program.

The STS research paper attempts to understand the decision-making process that occurs for CS students when applying to graduate school. Current trends have indicated a large

preference for entering the job market upon graduation. Recognizing this situation and understanding the anomaly, that is students entering graduate school, is the main purpose of this paper. The paper summarizes different perspectives collected through a series of interviews with current and future graduate students, as well as current recently graduated industry workers, to identify and analyze different factors that come into play when forming their stance towards graduate school. These factors, labeled as codes, were created to highlight the commonly repeated ideas that persisted throughout the different interviews in order to analyze their importance. Following the analysis of each interview, important or frequently repeated codes were further detailed through an analysis of current trends within the field of CS and research done on similar topics to better understand their significance and the magnitude of the impact that they have on student decisions toward graduate school.

The following papers together attempt to analyze CS students during their undergraduate careers and the different career paths that they can take upon graduation. The technical looks at entrepreneurial endeavors, while the STS research paper looks at graduate school as a potential option. While entering the job market is a solid choice, providing different options for students to take is imperative in making a CS degree a more compelling and adaptable option, especially within a competitive and oversaturated industry. Overall, while a CS degree promises high paying jobs, it is up to the students themselves to adapt to the market and make the right decision for their career progression.