

Stony Brook University The Graduate School

Doctoral Defense Announcement

Abstract

PALS: Personalized Adaptive Learning System

By

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The Internet has ushered in an era of spontaneous, effective, and economical information exchange between individuals on a scale never seen before. This is evident in the rise of social media in our daily lives, which allows us to document and share our experiences with the world. The world is moving towards using video as the primary mode of information exchange as evidenced by the popularity of TikTok and Youtube among a myriad of other video sharing platforms. In classrooms, the main mode of information exchange appears to be instructor-centered. Instructors in large classrooms tend to cater to the middle during lectures after which students are still expected to increase their knowledge primary on their own, leading to isolation of the top and tail end of a class. Study groups and flipped classrooms offer alternative approaches, but suffer from scheduling problems and lack of personalization. However, instructors cannot expect to cater to their individual needs, especially in large classrooms. Large classrooms also tend to have a diverse student body in terms of learning, race, and gender, making personalization difficult. The primary goal of this thesis is to propose the Personalized Adaptive Learning System(PALS), a scalable video-based social learning network. PALS leverages the diversity of the student body to create a diverse pool of student-sourced, student-verified video content from which a personalized pathway can be recommended for each student to get from what they know to what they want to know.

In addition, this thesis proposes using the Charisma of student presenters to assess the quality of student-sourced videos. Charisma along with a host of features is used to train a machine learning model to filter the huge pool of content that is created by using such a social learning network. We can show that creating, watching, and evaluating student-sourced videos has an impact on student learning performance. We also found that the random forest model has an accuracy of around 80% to verify the quality of student-sourced content.

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Place:

Program: Electrical Engineering

Dissertation Advisor: Prof. Wendy Tang

Zoom(<https://stonybrook.zoom.us/j/98412128329?pwd=nthayaWmxue167rUEbiHpmVF B266Xa.1&jst=2>)