

# CS 490 Proposals

## 1 Data mining of Software Repositories (2 students)

Software analytics aims to obtain insightful and actionable information from software artifacts that help practitioners accomplish tasks related to software development, systems, and users.” [1] With software analytics, the main idea is mining the big data in multiple software repositories to produce insights for decision makers in the software development process.

The project has the following stages;

Getting familiar with the topic: This requires some guided reading about Software Analytics and Data mining.

Research: First step is finding the proper software analytics question (s) that have practical impact to software practitioners. Then, you will investigate /combine various data mining techniques (machine learning algorithms, deep learning, big data graph visualization etc.) to answer the software analytics question.

Implementation: Application of the right data mining technique to the right data science question

Experimentation: You will evaluate your approach based on available open source repositories.

[1] D. Zhang, S. han, Y. Dan, J.-G. Lou, H Zhang: ”Software Analytics in Practice”. IEEE Software, Sept./Oct. 2013, pp. 30-35.

## 2 Using Gamification / Serious Games for Effective Software Engineering (1 student)

Gamification aims to increase user’s engagement, motivation, and performance when carrying out a certain task, by means of incorporating game mechanics and elements. A serious game is a game designed for a primary purpose other than pure entertainment such as teaching. In this project you would be exploring how to increase the software engineering productivity using gamification or serious games. The project has the following stages;

Getting familiar with the topic: This requires some guided reading about gamification techniques and software engineering processes.

Research: Designing a serious-game / gamification technique to increase the productivity of software engineers.

Implementation: You need to design a serious-game or implement gamification techniques.

Experimentation: You will evaluate the effectiveness of your approach through out a short case study.

Please check <http://www.cs.bilkent.edu.tr/korpe/courses/CS490/index.html> for eligibility. If you are interested, please send me an email with your CV and transcript (eraytuzun@cs.bilkent.edu.tr)