EEE598 Personal Sensors for Mobile Health Applications

Fall 2018

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Description and Objectives:
Healthcare cost has been rising exponentially over the past decades due to various reasons, including the rapid aging of world population and cost of new drug discovery and validation. This trend is clearly unsustainable. Synergetic integration of innovative sensors and wireless technologies will lead to the next generation of mobile health devices for prevention, diagnosis and management of diseases, and thus contribute to the solution. The goal of the course is to take the student to the frontline of the rapidly evolving mobile health research, development and applications, and prepare her/him to make independent contributions to the emerging technology trend. The course will be divided into three parts. Part 1 (20%) consists of mainly lectures, covering the most fundamental aspects of mobile health devices, including biosignatures, physical, chemical and biological sensors to monitor the biosignatures, and integration of the sensors with wireless communications. A middle term examine will be given at the end of Part 1. Part 2 is literature review (25%) – each student will chose a specific topic, search relevant literature and write a ppt summary. Part 3 is project (40%) – each student will chose a specific topic and complete a project due at the end of the semester. In addition to the above three parts, regular class participation/attendance is expected for the student, which accounts for 15%.

Textbooks:
There is no prescribed textbook for the course, but reference books and materials will be provided.

Prerequisites:
The course is intended for graduate students and undergraduate seniors from Engineering, Chemistry and Physics. Basic knowledge in basic science and engineering is expected, but passion for developing scientific and engineering solutions to solve growing health problems is required.