



# COLLEGE of ENGINEERING AND PHYSICAL SCIENCES

SCHOOL OF COMPUTER SCIENCE

## PhD Seminar 1

**Monday November 26, 2018 at 1:00 PM in Reynolds, Room 2224**

Automated Collection of Crop Growth Information for Digital Agriculture

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### **ABSTRACT:**

Timely, accurate, and reliable information about crop growth is very important for agriculture. Based on the information, farmers can correctly apply fertilizers, pesticides, and suitable techniques to maximize output. Currently, farmers are mainly using traditional methods and tools, e.g. rulers, personal observation to collect crop growth data, analyze and interpret the data on the basis of personal experience and knowledge. Such an approach has the disadvantages of lateness, inaccuracy, unreliability, and incorrect personal knowledge. In agriculture, the work of using advanced computer technologies for data gathering, processing, analysis, and interpretation has been far behind many other areas. Farmers have not benefited much from the rapid development of data science and artificial intelligence.

Our research is aimed at developing a new technique for the automated collection of crop growth information. We integrate digital image analysis, machine learning, sensor network, Internet of things (IOT), etc. in developing the technique. The automated data collection and analysis technique is especially useful for digital agriculture, in which farming operations are guided by crop growth models. Modeling plant growth allows us to intuitively understand the virtual process of plant growth, take the best possible actions to facilitate crop growth, and make reasonable predictions. This AI based plant growth modelling and data collecting technologies will be more accurate in data, more automatically in the process, more effective in the application, more feasible in prediction scenario.