

# Undergraduate students help improve software for managing and processing medical images

## Students

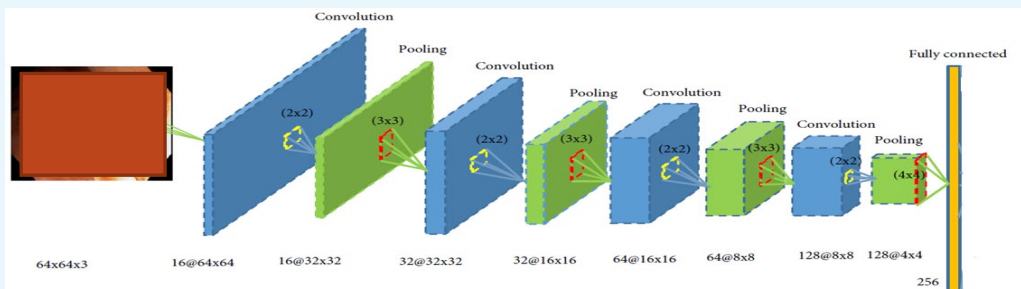
Jacob Pratt, BS Computer Science, ISU, Fall 2019  
Stephanie Engelhardt, BS Computer Science, ISU, Spring 2018

## Mentor

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We develop a software suite for 1) analyzing images from colonoscopy for improving quality of the colon examination and compressing captured colonoscopic images into video files; 2) annotating images and video files; and 3) managing video file transfer.

The analysis software is a multi-thread program written in C/C++/assembly and does an inter-process communication with a Python program via shared memory. The software for annotation of video and image data is in Java. The Python program runs a Convolutional Neural Network inference for prediction of class labels of images.

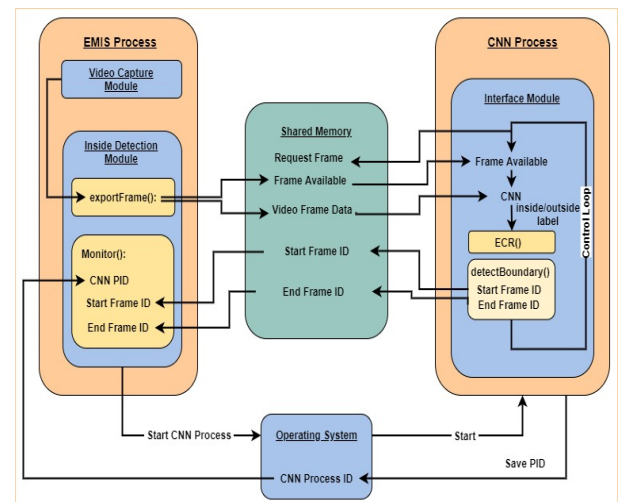


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**Disclosure:** Tavanapong has equity interest and management roles in EndoMetric Corp.

## What Students Learned/Practiced

- Skills in software development and software testing for real-world deployment in hospitals
- Inter-process communication programming
- Image representation, video compression
- Multi-threaded programming
- Database management and Structural Query Language, JDBC
- Research process, literature survey



## Outcomes

- Software is currently in use in a clinical trial in three leading US hospitals.
- Publication in IEEE Proceedings of Computer-based Medical System 2020