



## **Arthrex – Live Speech to Text Processing**

This project is in cooperation and partnership with Arthrex California Technology Inc located in Goleta (within biking distance of campus!). Arthrex Project Lead –John Batikian.

Arthrex is a global medical device company and leader in new product development and medical education in orthopedics. With a corporate mission of helping surgeons treat their patients better, Arthrex has pioneered the field of arthroscopy and developed more than 11,000 innovative products and surgical procedures to advance minimally invasive orthopedics worldwide.

## **Project Description**

### **Problem Statement**

The Arthrex Synergy UHD4 Imaging Platform, in the picture below, is the first endoscopic 4K resolution camera system on the market. The console revolutionizes endoscopic visualization and image management, by combining 4K camera heads, LED lighting, image management and integration with an intuitive tablet controller. The console allows for capturing images and videos that are reviewed by the surgeon and shared with the patient at the conclusion of a procedure. At the end of a surgical procedure the doctor also writes a report, which is completed manually or by calling in a voice recording that is transcribed by another individual. The goal of this project is to create a speech to text platform for embedded camera system and streamline case reporting for surgeons.



### **Objective**

The first goal of this project is to build a non-cloud embedded speech to text recognition platform for the annotation of medical images and surgical procedures. The algorithm will be used to convert a surgeon's speech to text for image/video captured during an active surgical procedure. In order to accurately detect less common medical terms, training of the speech processing models may be necessary.

The second goal is to deploy the real-time speech to text algorithm on an embedded system, like the Nvidia Jetson TX1. Test algorithm on audio recordings from surgeons to demonstrate that algorithm is capable of detecting specific medical terminology.



### **Student Requirements**

Team participant will be required to;

- Sign non-disclosure forms with Arthrex to limit outside disclosure of proprietary information related to supplied camera system.
- Sign agreements that provide Arthrex with access to any intellectual property developed during the project.

### **Ideal Student Qualifications**

- Signal processing
- Algorithm development
- Strong programming skills
- Embedded software

Students interested in the medical imaging industry will find this project interesting and challenging. This is an opportunity to work with industry engineers, marketing executives, and medical professionals.

### **Assets Provided by Arthrex**

- Arthrex Synergy UHD4 Camera Controller Unit
- Nvidia Jetson TX1 or TX2

**Website:** [www.Arthrex.com](http://www.Arthrex.com)