

### Smart doctor assistant for early cancer screening through medical image analysis

#### Keywords:

- Digital health, histopathological image, cytological image and endoscopy video analytics, lesion, cancer
- Machine learning (ML), deep learning (DL), computer vision (CV), multimodality, risk assessment

### Problems addressed

- Medical image analysis is very time-consuming for doctors
- Impossible for doctors to analyze all collected medical images
- Images with unobvious features are easily overlooked by doctors with inadequate experience
- Medical diagnosis is location-restricted

To address the problems, ASTRI has been developing AI-aided medical image analytics technologies to help doctors improve diagnosis and work efficiency.

### Innovations

**The customizable medical image analytics system for collaborative diagnosis, image management, lesion detection and classification in pathology image and capsule endoscopy video.**

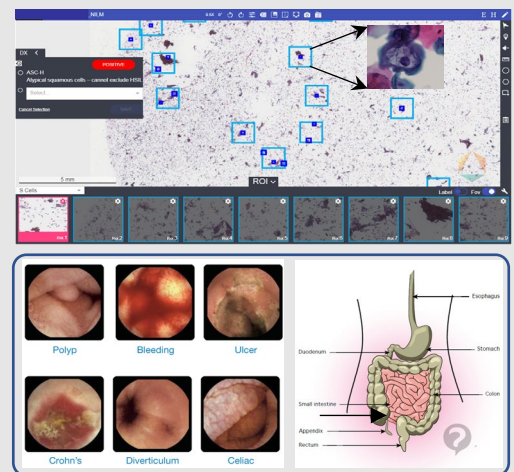
#### The innovation outline:

- **Lesion detection** for ultra-long (several hours) video analysis of capsule endoscopes
- **Malignant cell screening** for digitalized whole slide (file size reaches several GB) cervical pathological image
- **Image enhancement, video summary and location segmentation** for system performance improvement
- **Model design and optimization** for accuracy improvement and processing speed acceleration.
- **Unified platform management** for ease of use.

### Key impact

- AI-aided medical image analytics system can work 24 hours a day.
- AI processing and analysis speed far exceeds doctor's manual analysis.
- The medical image analytics system can be continuously improved and optimized.
- AI-assisted medical image analysis system can be used as a mentor for junior doctors.

### Innovation snapshot



### Project completed

- 2018 and 2019

### Applications

AI-aided

- Malignant cell detection in pathology image
- Lesion detection and cancer identification in endoscopy video

### Patent(s)

- US Patent No. 10,586,336 and CN App. No. 201880000830.0
- US Patent No. 10,354,122 and CN Patent No. ZL201880000218.3
- US Patent No. 10,937,158 and CN App. No. 201980001954.5
- US Patent No. 11,270,447; CN App. No. 202080000389.3 and HK App. No. 62021023136.6

[ASTRI Patent Search](#)

### Commercialisation opportunities

- IP licensing
- Technology co-development

### Contact details

Director, Commercialisation  
Priscilla Yeung  
Email: [priscillayeung@astri.org](mailto:priscillayeung@astri.org)  
Telephone: (852) 3406 0280