

Master Thesis Introduction

Detecting and Removing Surgical Smoke in Endoscopic imaging

Improving Image Quality for laparoscopic surgeries

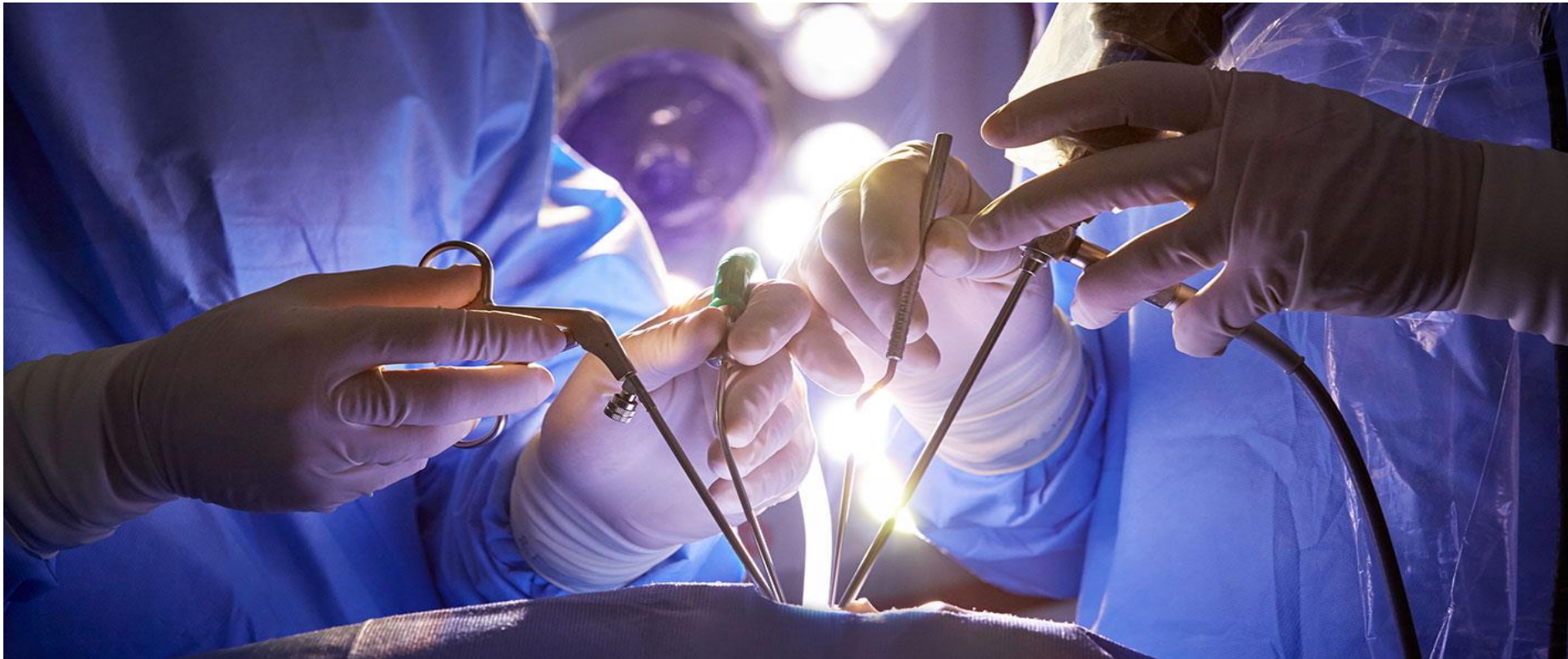
12. October 2018

Problem

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With passion.

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Endoscopes

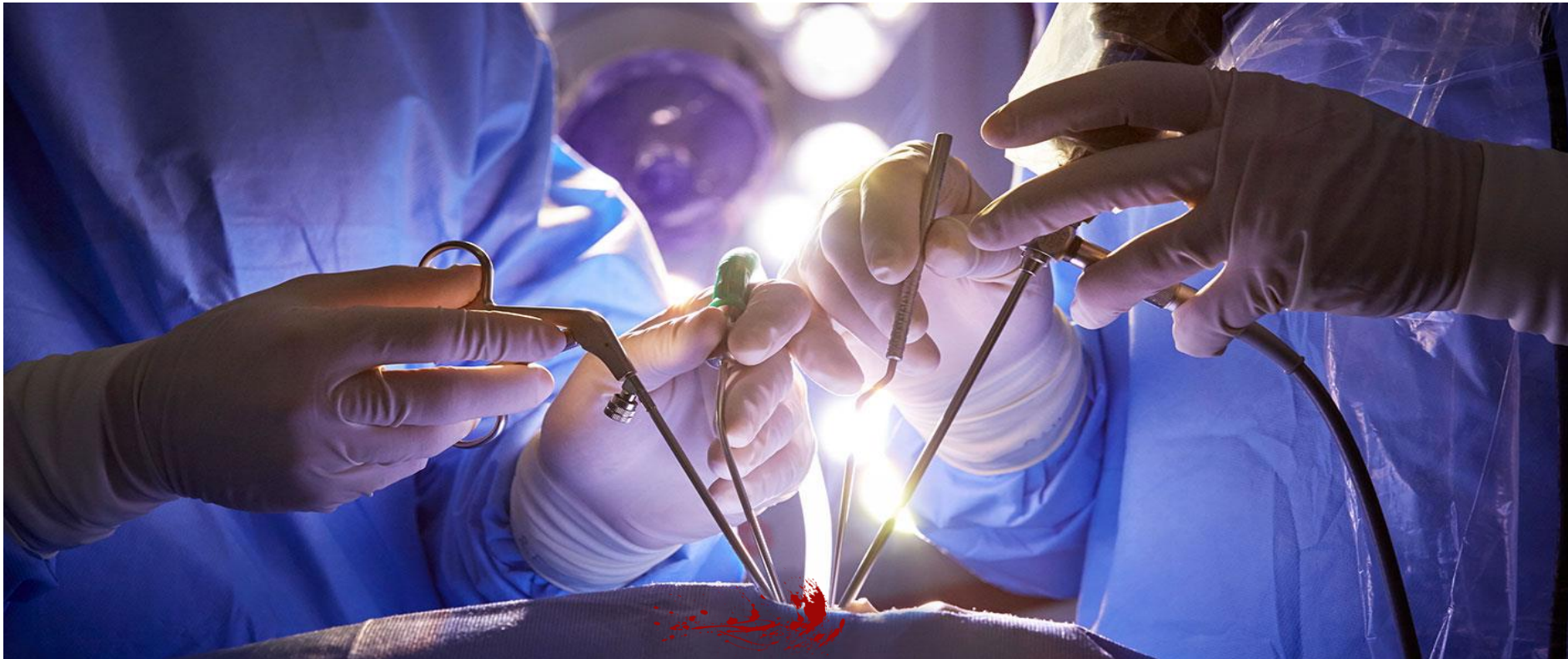


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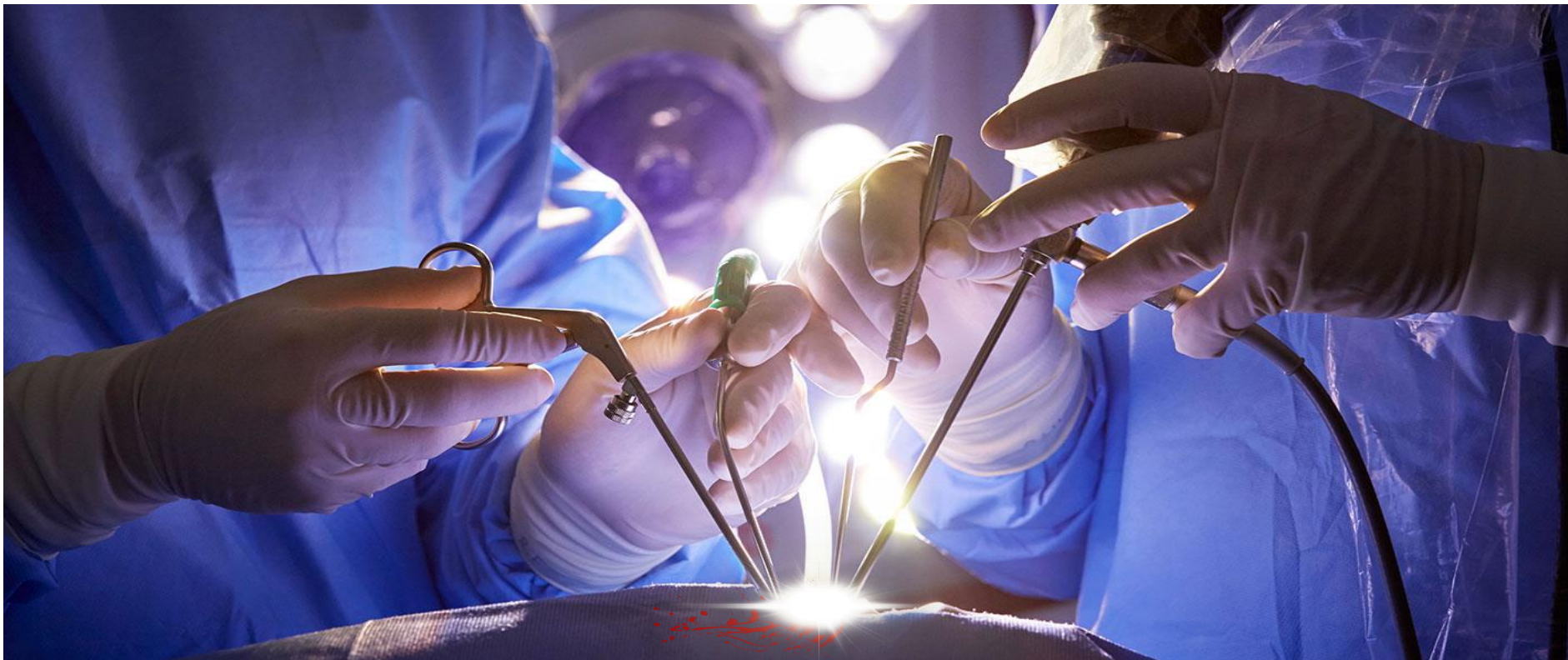


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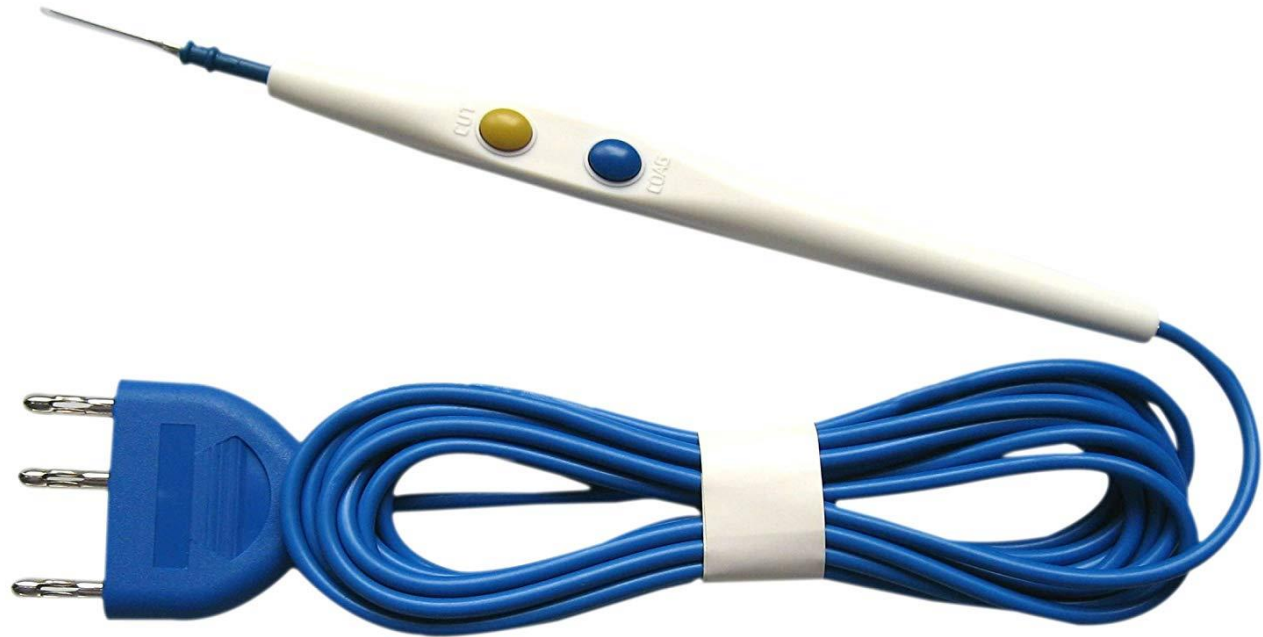
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Electrocauters

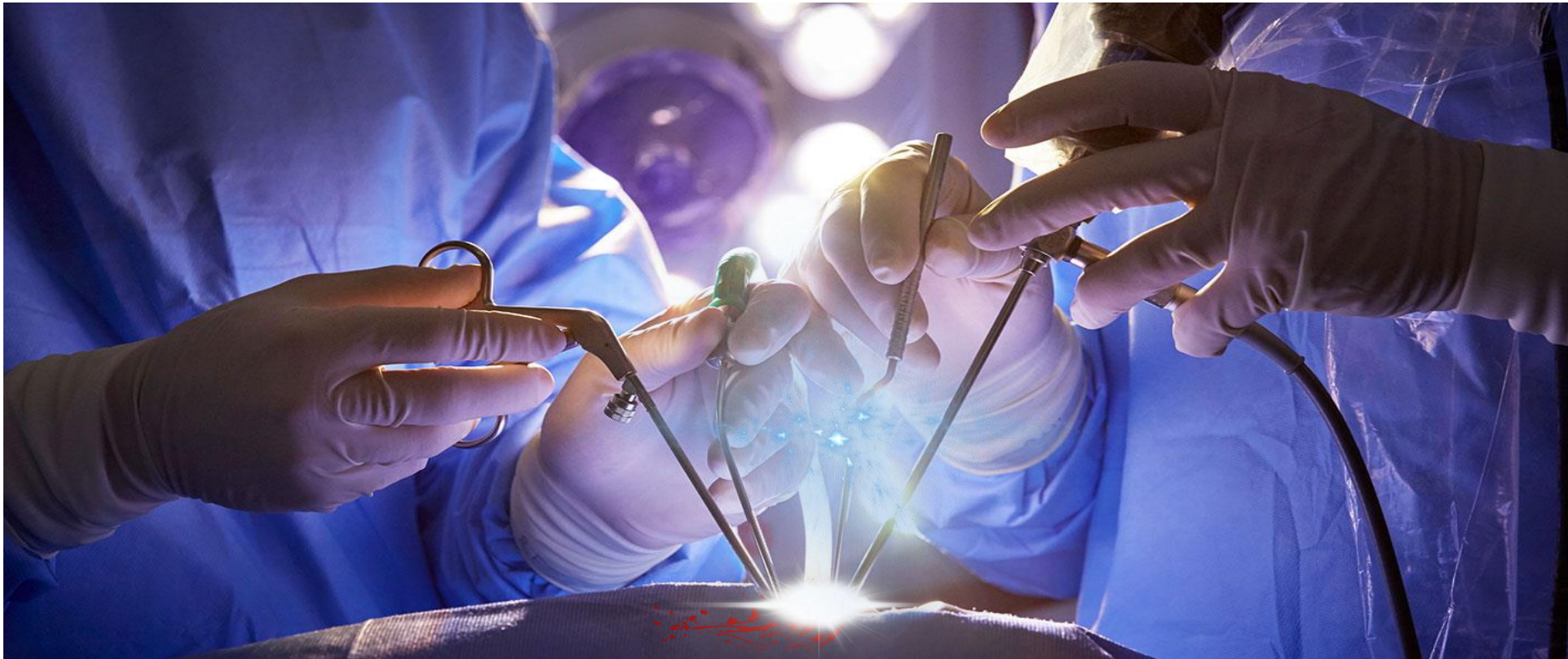


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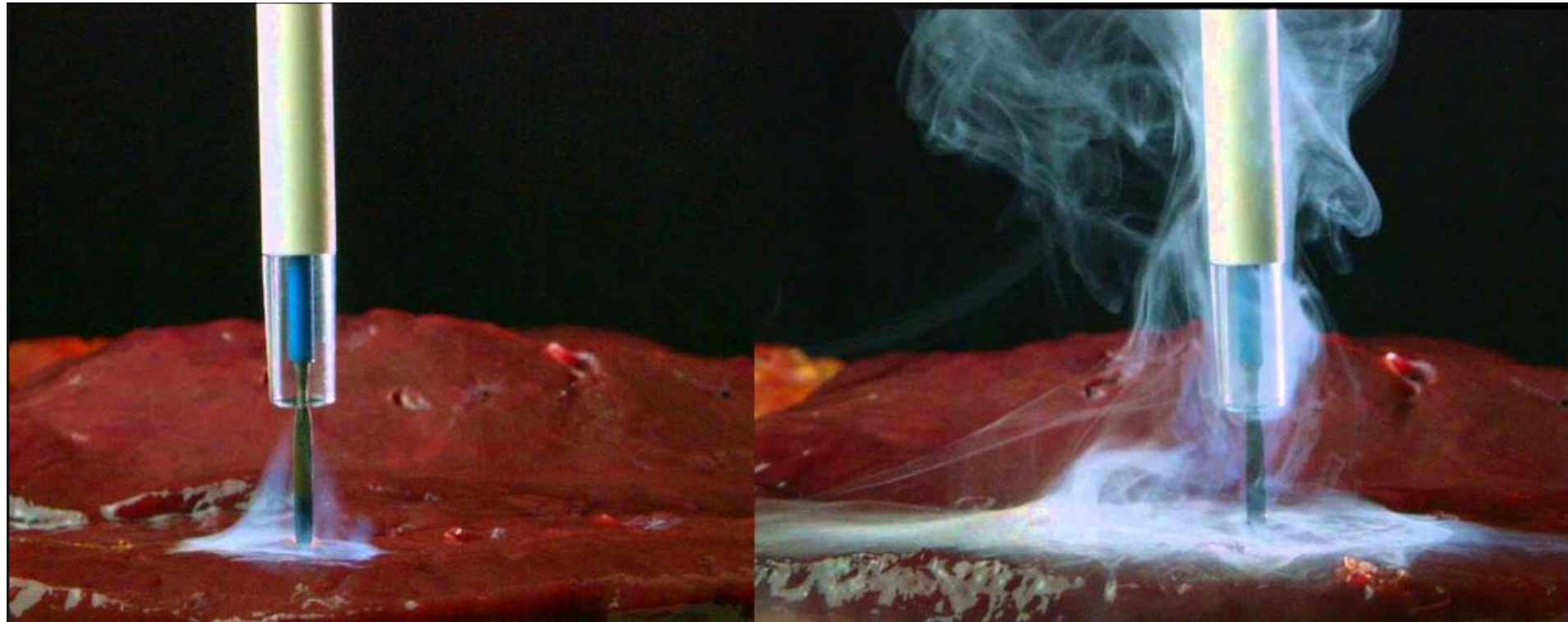


State of the Art

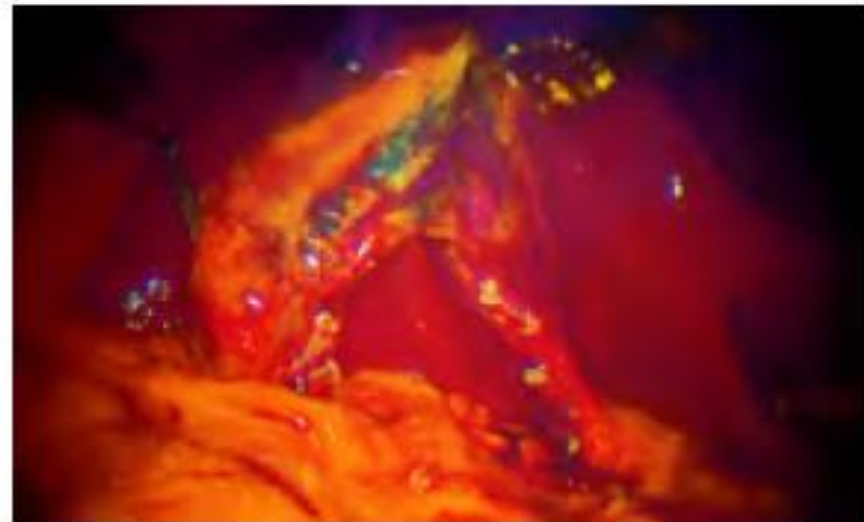
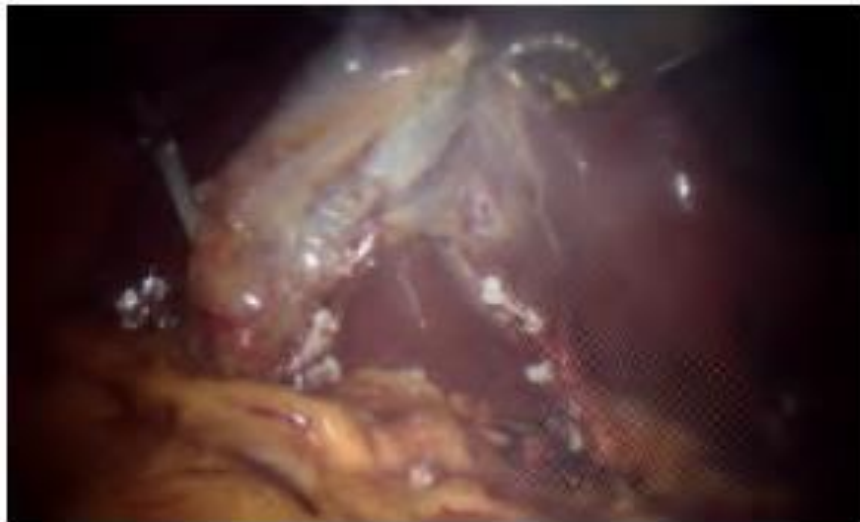
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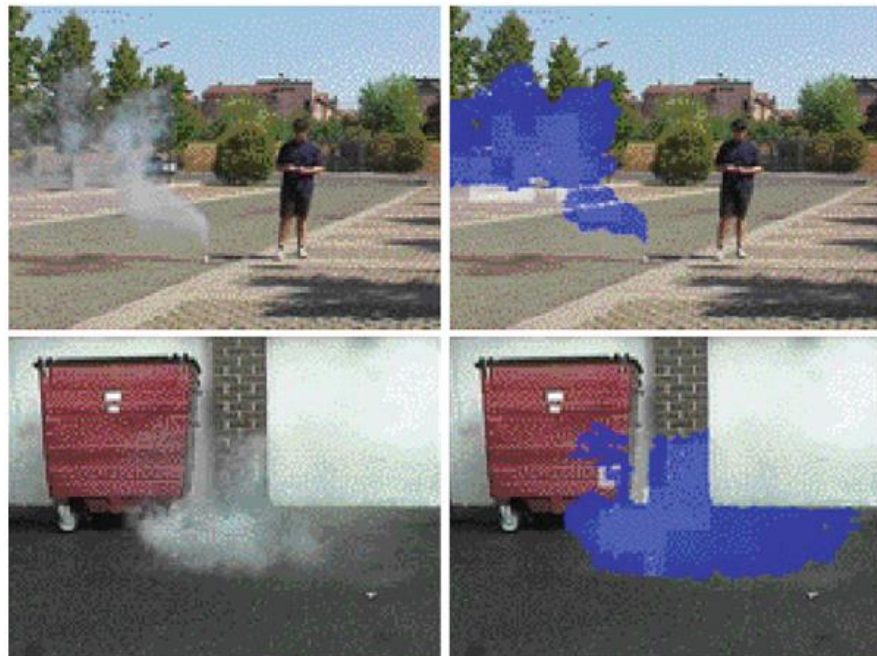
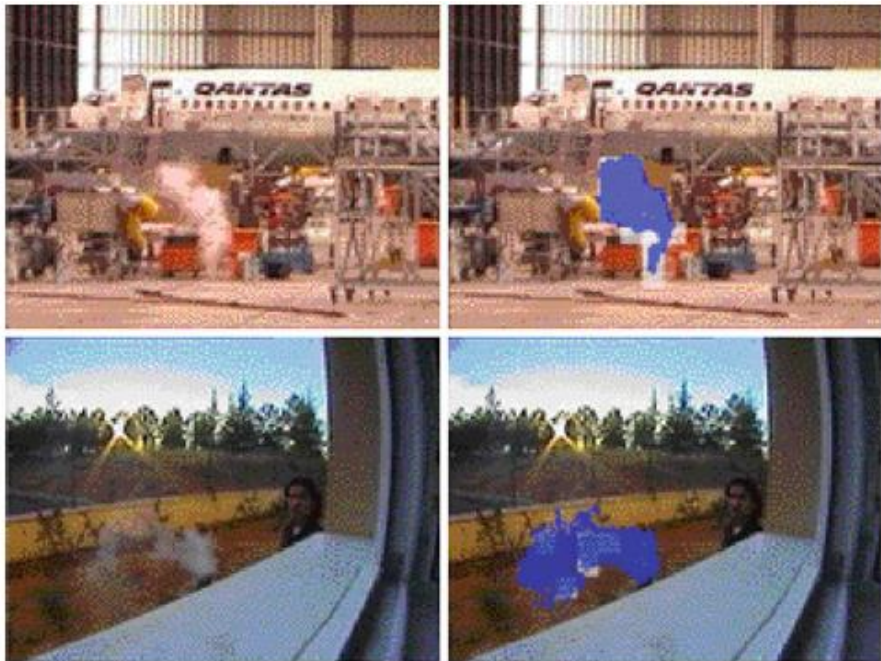
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Contrast enhancement



Smoke Detection



Dark Channel Prior



(a)



(b)



(c)

Median Stacking



Model Based Enhancement



Original

Dehazed

Relighted

Endoscope

Display
Processed Video

Image Processing

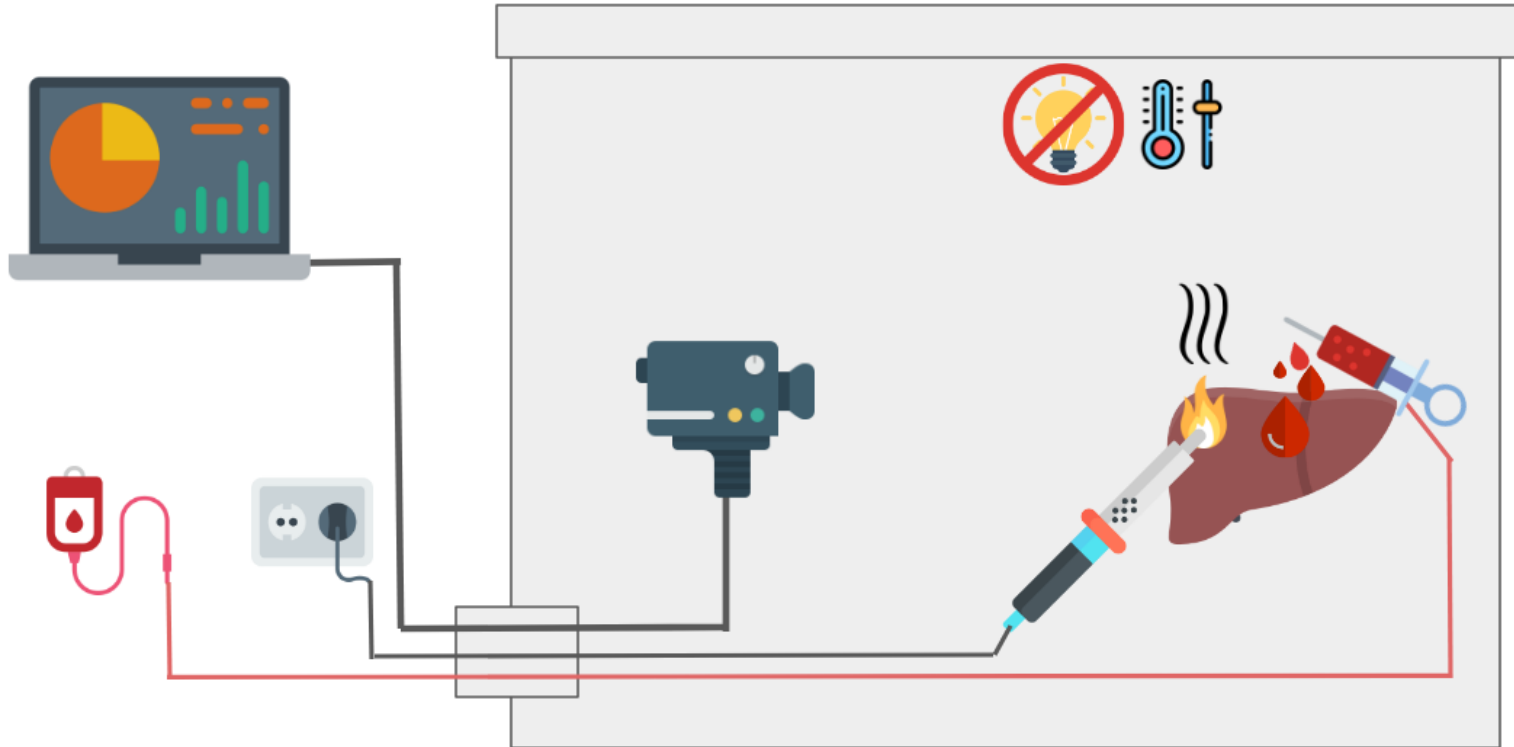
Smoke
Detection

Median
Stacking

Dark-Channel-
Prior

Contrast
enhancement

Compound
Image





Thank you!
For your Attention