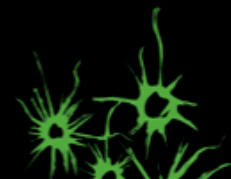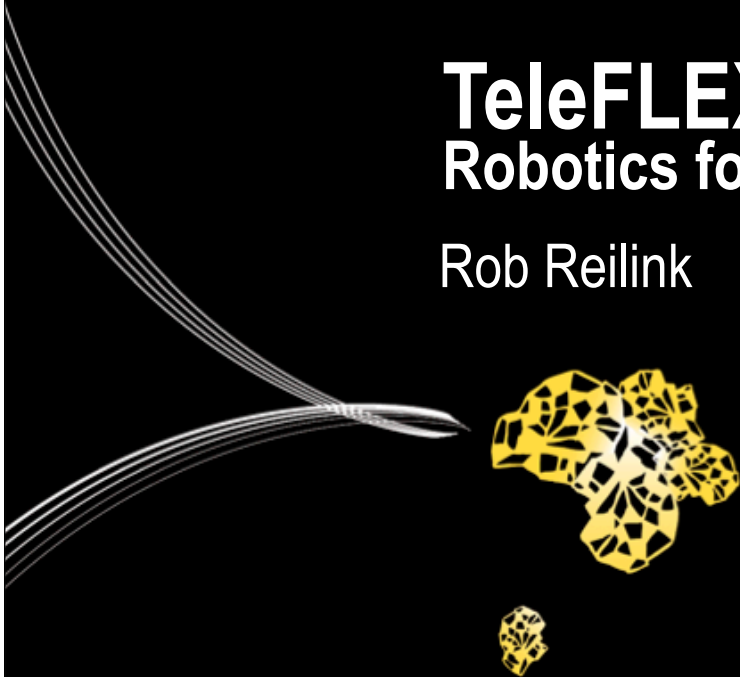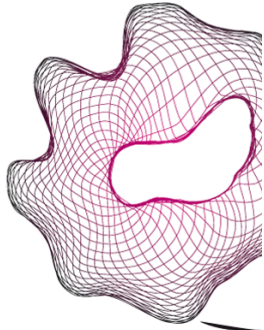# TeleFLEX
Robotics for Flexible Endoscopic Surgery

Rob Reilink

TeleFLEX
Robotics for Flexible Endoscopic Surgery

University of Twente
Enschede, The Netherlands
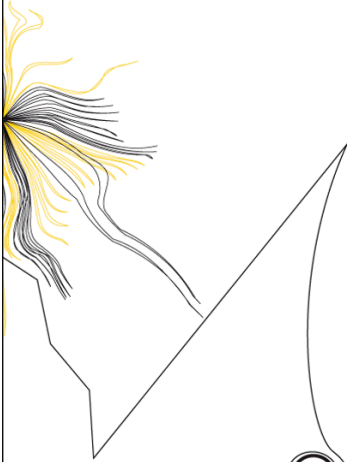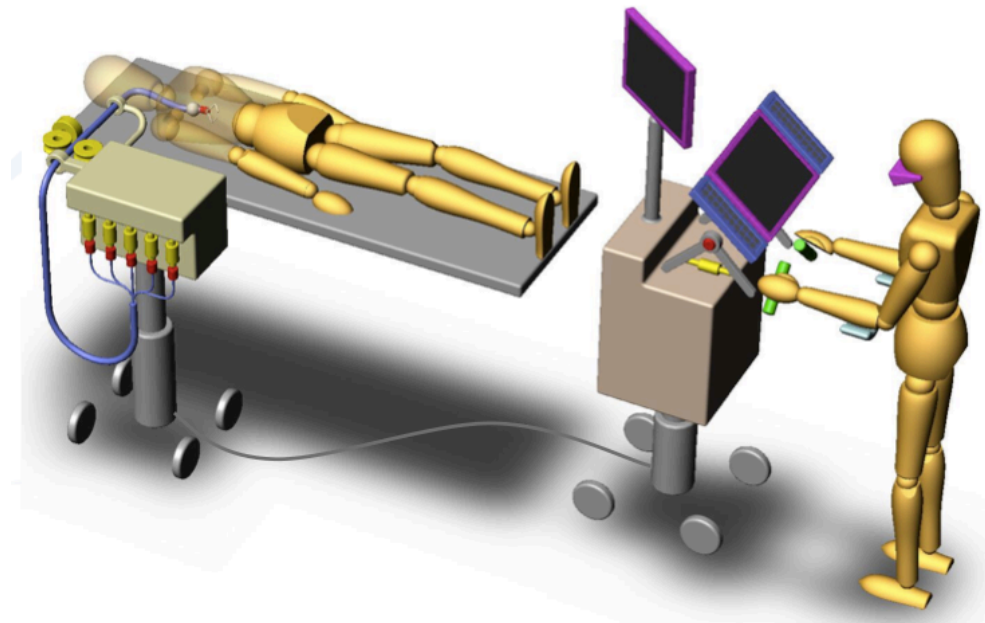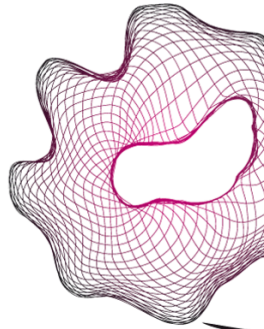
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Contents

- Context
- Project team
- State of the art - Flexible endoscopic surgery
- Opportunities - Added value of robotics

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TeleFLEX Context

- Improve flexible endoscopic surgery by using robotics

- Examples:
  - NOTES
  - SILS
 - Endoluminal

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TeleFLEX project team

- 5 PhD students:
  - Mechanical
  - Teleoperation
  - Control & Vision
  - Embedded software architectures
  - Industrial design
- Advisors:
  - Surgeons (endoscopic/robot-assisted surgery)
  - Technical/engineering
- User group:
  - Medical specialists
- Industry partner:
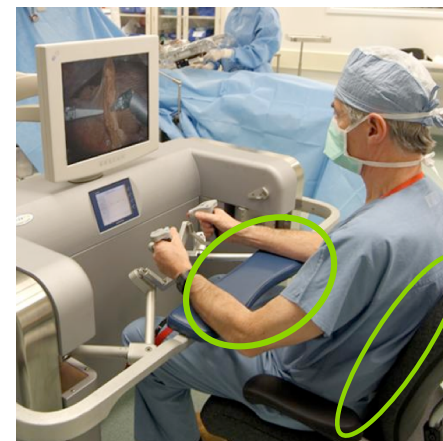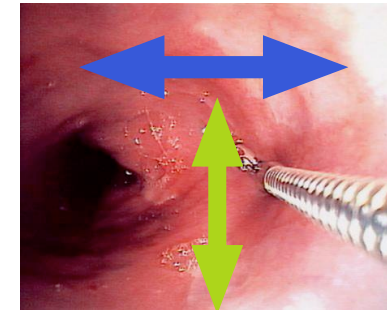 - Demcon, mechatronics / medical applications

State of the Art - Flexible Endoscopic Surgery
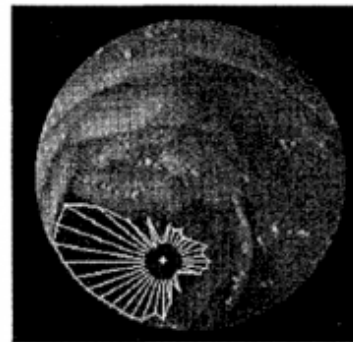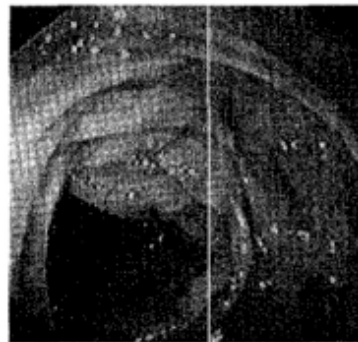
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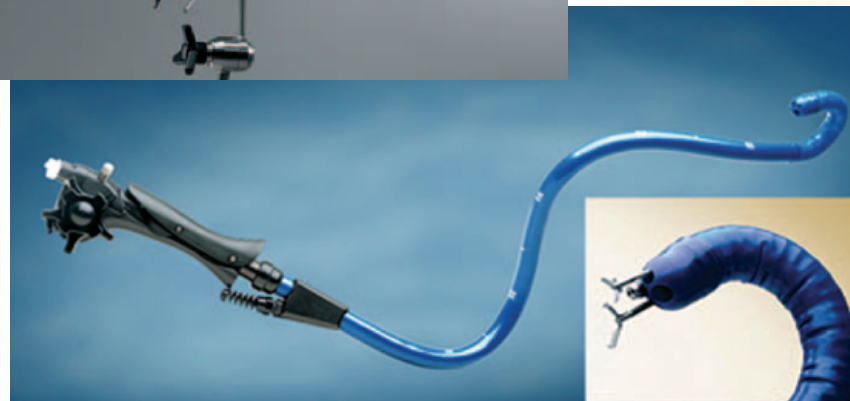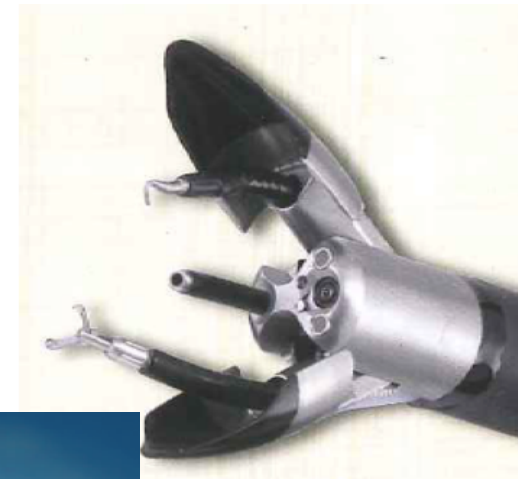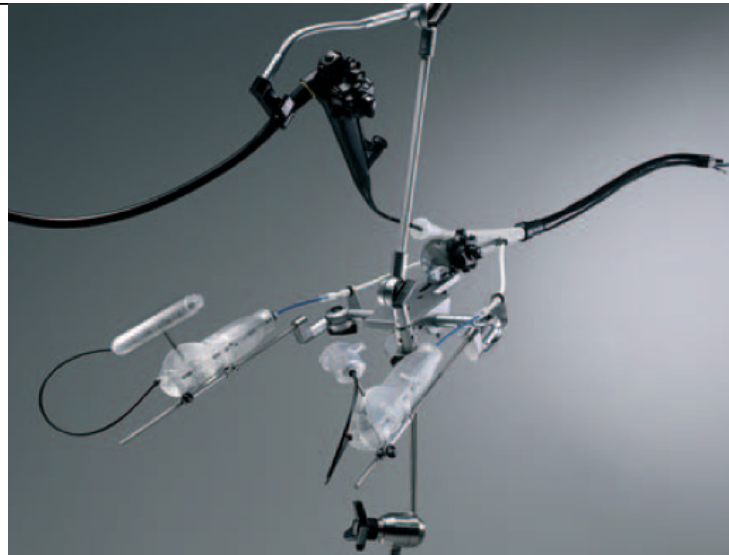
Opportunities - added value of Robotics

- More intuitive
- Partial autonomy
- Ergonomics
- Visualization
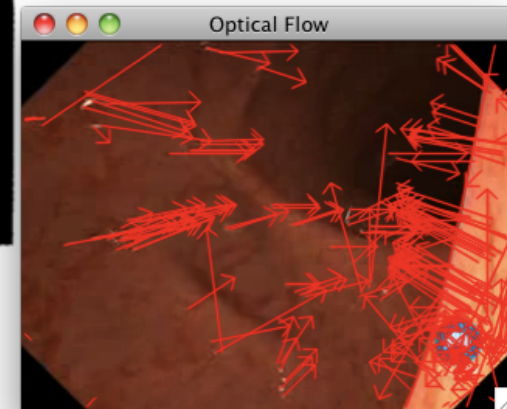- Controllable by one
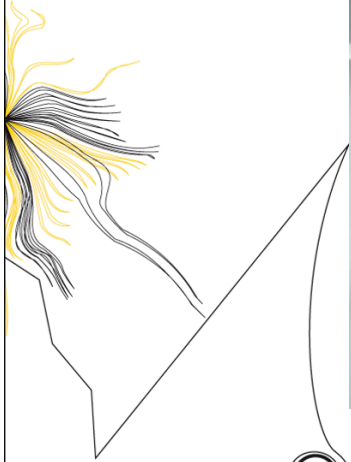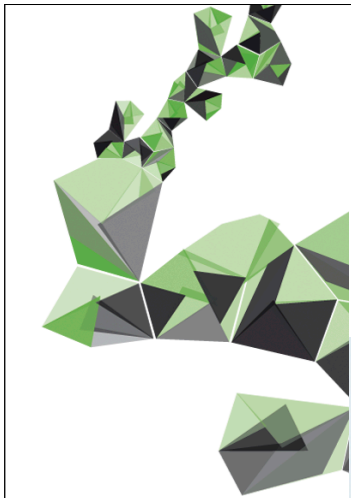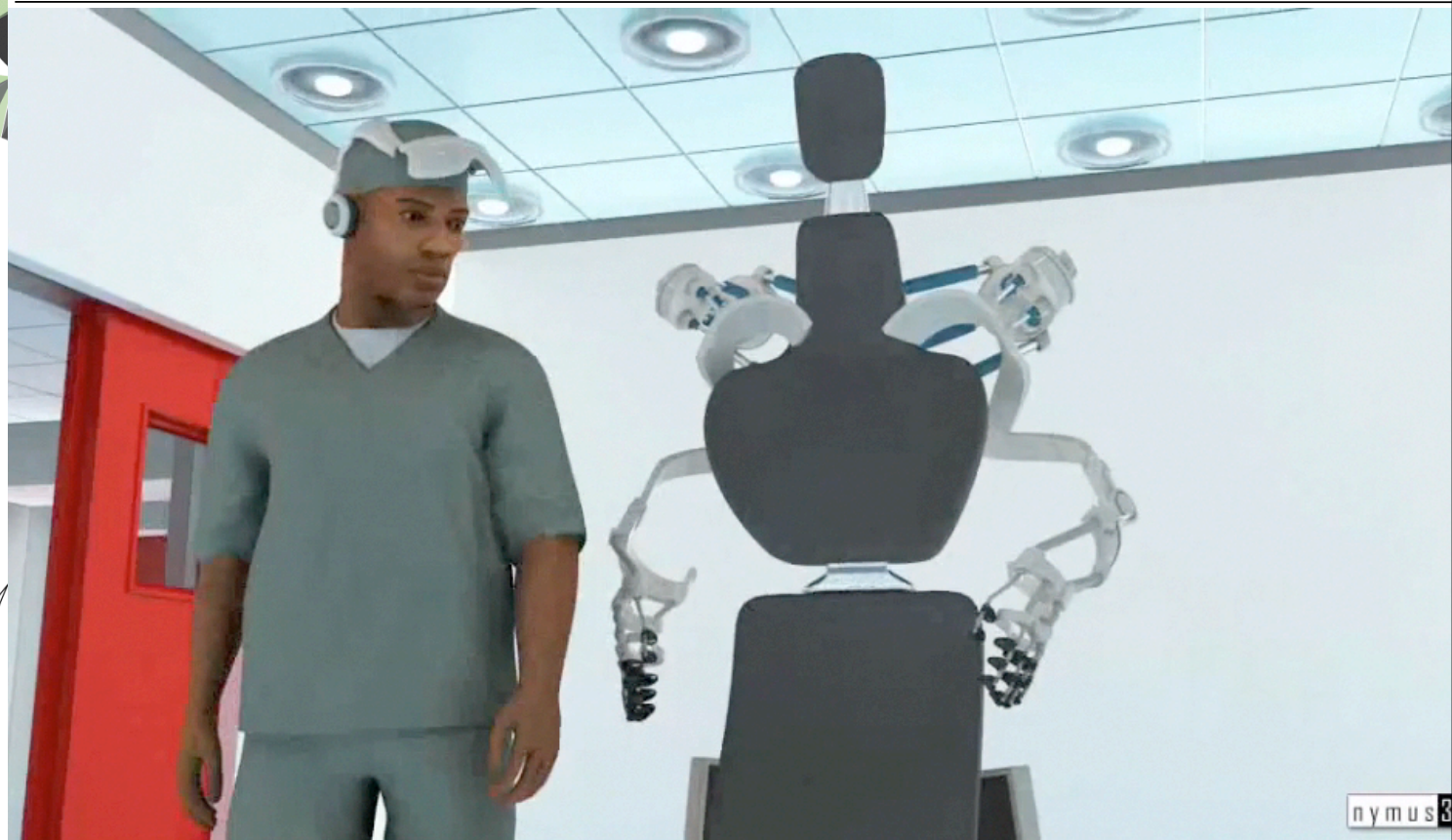 surgeon (reduces cost)

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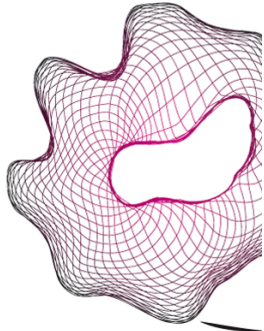
Automation / guidance

- Endoscope insertion requires control of both distal and proximal end.
- Control of the endoluminal tip:
  - Controllable by vision?
  - Automatic or guided?

Phee et.al.: Automation of Colonoscopy part II: Visual–Control Aspects

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Thank you for your attention

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