Medical Robotics
Medical Robotics: Telepresence
First Target: Health Care

Increase accessibility to doctor, nurse, and family
Future Targets

Independent living

Search and Rescue
iTAD Project Timeline

Hospital Environment
Y1 – Y3

Health and Independent Living
Y3 – Y4

Search and Rescue
Y4 – Y6
Our History: iTAD 1.0 (2016 – 2017)

Year 1: Explore
- Learn from basics
- Define goals
- Integrate the first generation
Year 2: Improve

- Improved structure and stability
- Upgraded equipment
- Redesigned appearance
Current iTAD

Year 3: Refine

• Emergency Safety Stop Sensors & Systems
• Robust and Adaptive Control
• Multipurpose End-Effector
• Autonomous navigation and mapping
• Much more...
Project Areas

Programming: Facial Recognition

Environment Simulations

Mechanical Design

Advanced Feedback Control

Testing, Interviews and Analysis

Electrical System Design and Power Monitoring
Group/Team Structure

Group
- Mobility
- Arm
- Interactions

Omni Board

Teams
- Structures
- Dynamics
- Controls
- Systems
- Human Factors
## iTAD Team (2019-2020)

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Engineering Streams</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 – 10</td>
<td>Mechanical Engineering</td>
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<tr>
<td>8 – 10</td>
<td>Biomedical and Mechanical Engineering</td>
</tr>
<tr>
<td>3 – 5</td>
<td>Aerospace Engineering (Stream C and D)</td>
</tr>
<tr>
<td>2 – 5</td>
<td>Electronics Engineering</td>
</tr>
<tr>
<td>4 – 6</td>
<td>Software and Computer Systems Engineering</td>
</tr>
</tbody>
</table>
Project Manager:
- Dr. Ala’ Qadi: Controls and Systems *lead*

Lead engineers:
- Dr. Rong Liu: *Structures Lead*
- Dr. Peter Liu: *Dynamics Lead*
- Dr. Adrian Chan: *Software*

Collaborators:
- Ottawa Hospital, Tetra Society, Brueyer Hospital, and others.
Project Manager:
- Dr. Mojtaba Ahmadi: *Dynamics and Instrumentation lead*

Lead engineers:
- Dr. Rong Liu: *Structures Lead*
- Dr. Peter Liu: *Controls Lead*
- Dr. Adrian Chan: *Software (Navigation and mobility)*
- Dr. Ala Qadi: *Interactions and Systems (from Algonquin College)*

Collaborators:
- Ottawa Hospital, Tetra Society, Brueyer Hospital, and others.
Thank you!

We will be happy to answer any of your questions