

Dexterous Catheters

Supporting the best outcome for patients by equipping doctors with next-level cardiac technology

In a nutshell

Cardiac arrhythmia occurs when the heart beats either too slowly, too fast, or in an irregular pattern. The most frequent type of cardiac arrhythmia, atrial fibrillation, affects 38 million people and causes 300,000 deaths each year. The traditional treatment for these arrhythmias is cardiac ablation. This involves guiding a catheter through the heart and scarring the heart tissue to normalize the heartbeat. This is increasingly done using robotic systems and remote magnetic navigation to enhance precision and eliminate radiation exposure. However, this method has limitations. When pressure (to scar the tissue) is applied, the catheters buckle and can't exert enough force. This results in success rates which are 10-20% lower and prolonged operation times. Dexterous Catheters have developed a technology which transforms these intricate and high-risk procedures, significantly improving operational efficiency and patient care.

Why is our technology important?

Dexterous Catheters has designed StiffCharmer, a catheter engineered to overcome existing limitations in cardiac ablation. Our catheters' adaptability to become rigid or soft on command is key. When soft, our catheters can safely navigate the complex chambers of the heart to the target zone. When hard, they resist buckling, allowing doctors to apply concentrated force for high-quality ablations offering higher success rates and a shorter procedure time than existing methods. Our catheters offer unparalleled precision and control, enabling doctors to perform more effective and safer heart surgeries.

The benefits of our solution

- Proven efficacy: Initial in vitro tests have shown that StiffCharmer significantly outperforms existing magnetic catheters in applied force, with improvements ranging from 12% to 41%, depending on the system evaluated
- Higher success rates: Our catheters enable more precise and forceful ablations, increasing the likelihood of successful treatments and reducing the need for repeat procedures.
- Improved patient safety: The enhanced control and effectiveness of magnetic navigation means not only shorter surgery times but also reduces the risk of complications through the variable stiffness feature.
- Improved doctor safety: The use of robotic systems in conjunction with our catheters minimises radiation exposure to doctors.

Dexterous Catheters has already secured a letter of intent from a leading surgical robotic firm. We believe we can help bring about a world free from the threat of heart failure, with every doctor empowered by the most advanced tools to ensure health and recovery. We'd love you to join us on this journey!

Keywords

Cardiac ablation – Cardiac arrhythmia, Robotics, Variable stiffness catheters, Minimally invasive devices, cardiology, Remote magnetic navigation

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