

“The Lonely Robo” : Robotic Word Search Solving System  
(Technical Report)

How Social and Commercial Imperatives Compromise  
the Safety of U.S. Medical and Health Technology  
(STS Research Paper)

An Undergraduate Thesis Portfolio  
Presented to the Faculty of the  
School of Engineering and Applied Science  
In Partial Fulfillment of the Requirements for the Degree  
Bachelor of Science in Computer Engineering

by

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May 5, 2020

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## **Preface**

The success of medical technology depends both on its technical efficacy and on its application in practice.

The research team developed an automated system that detects, parses, and solves printed word-search puzzles as a demonstration of multidisciplinary engineering projects that are essential in applications such as robotic surgery. Our team sketched major components before implementation and tested them. We deployed a “divide and conquer” strategy to distribute the work. The resulting system solved several word-search puzzles, demonstrating the value of techniques such as optical character recognition and 3D printing.

In the U.S. commercial imperatives sometimes compromise the safety of medical technology. A misperception of a medical device’s capabilities can be catastrophic. Marketing teams and media sometimes exaggerate the capabilities of medical technology. Marketing claims and media reports are sometimes inconsistent with medical research findings, indicating that medical technology may be misused or overused, at high cost and to the detriment of patient health.