

The Lonely Robo: An Automated Word Search Solver
(Technical Report)

The Competition for the Future of Ride-Hailing
(STS Research Paper)

An Undergraduate Thesis Portfolio
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Bachelor of Science in Computer Engineering

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Preface

Engineers are striving to build robotic systems that can perform human tasks better than humans. In such projects they face major technical challenges, and success bears important social implications.

How can a word-search-solving robot be developed? Building such a robot is a valuable learning opportunity; engineering students must apply skills from several technical fields while gaining experience designing real-world products. A mechanical system capable of solving word searches was constructed by combining embedded programming with mechatronics and computer vision. A working prototype capable of solving and highlighting a variety of word searches, typically within 10 minutes, was built. The project demonstrated how tasks can be automated with computer vision and how concepts can be extended to build more complex and significant applications.

How are ridesharing companies and their drivers competing to influence the future of ridesharing in the U.S.? The industry may be unsustainable: the major companies, Uber and Lyft, are struggling to make a profit and driver compensation is low. U.S. ridesharing companies are seeking to automate driving to reduce labor costs, while drivers have been demanding better working conditions. Their jobs may be threatened as employers pursue automation.

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