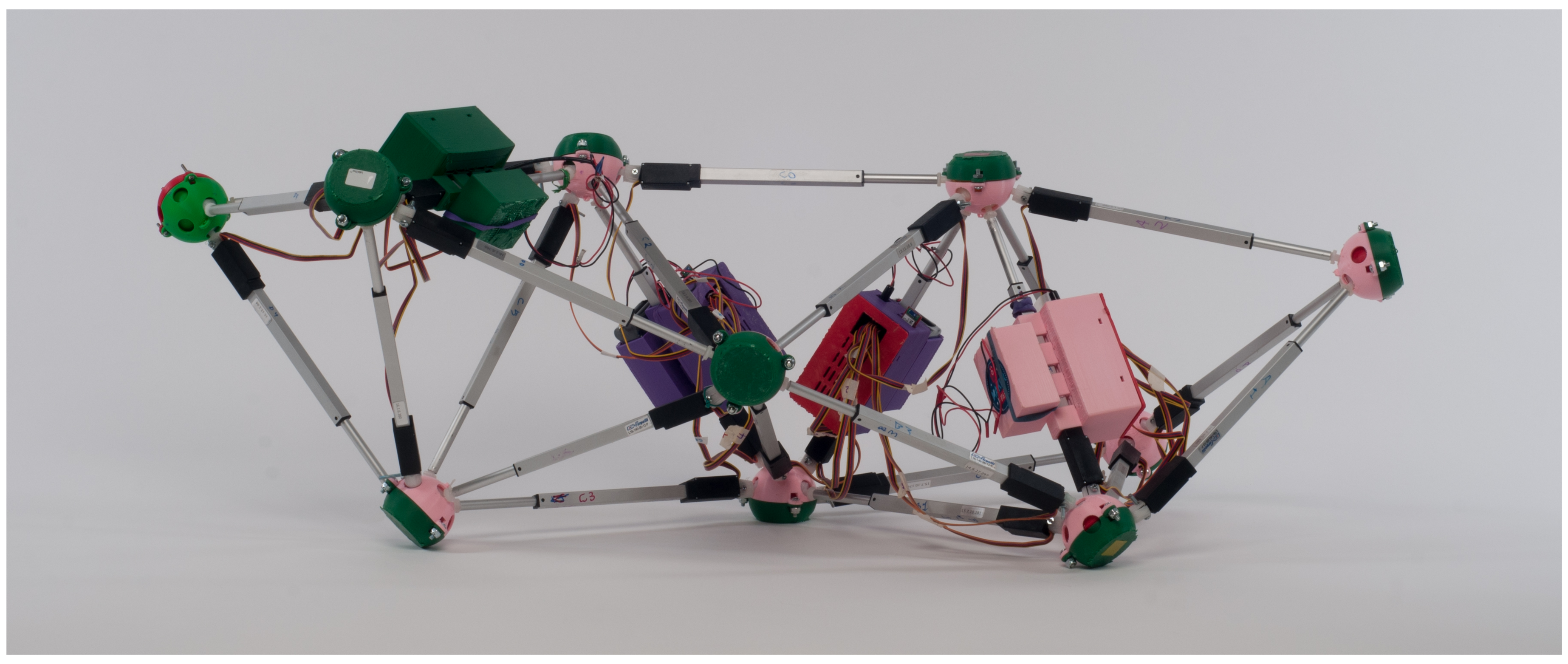
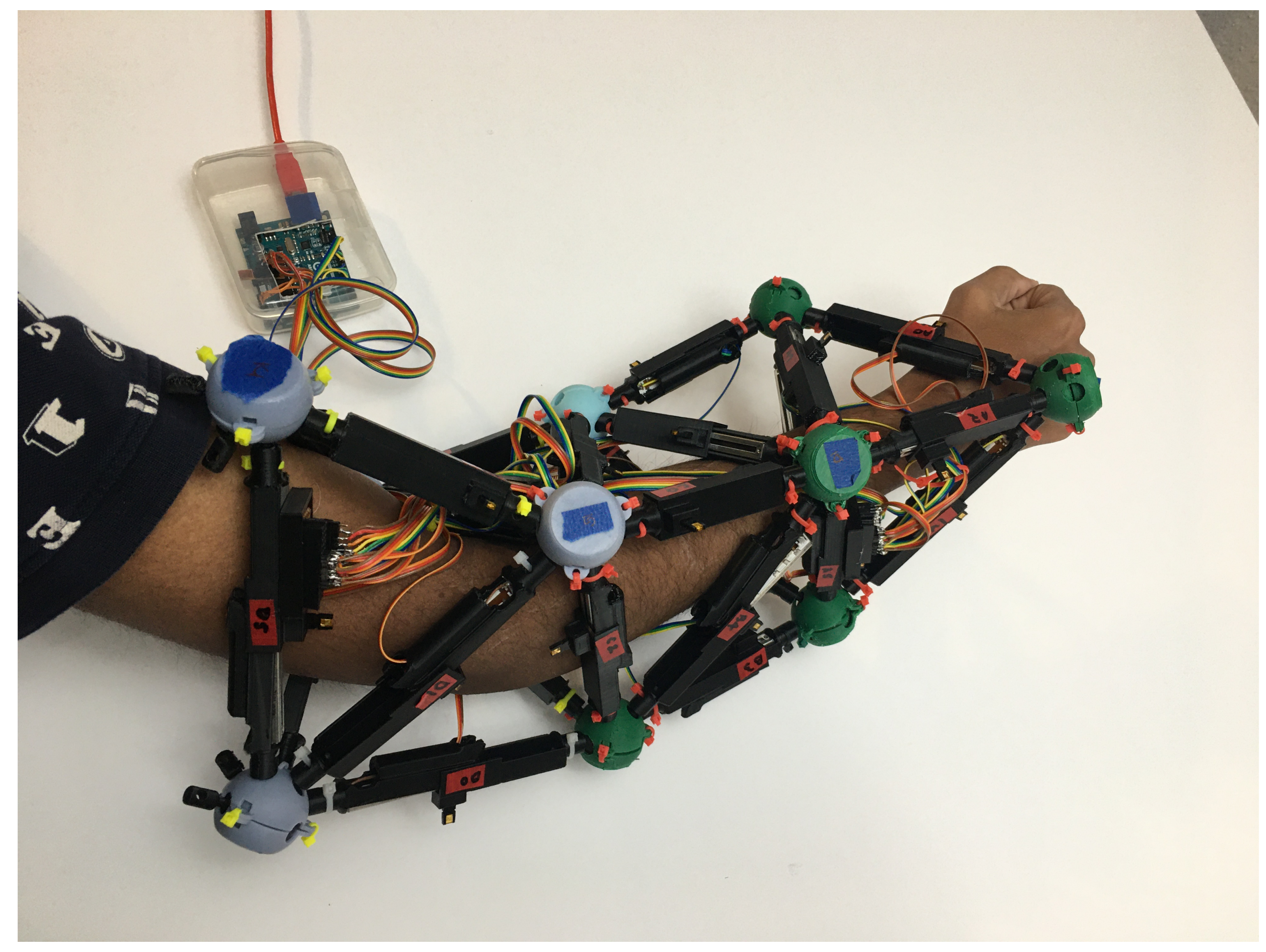
Applications

The TetroCon is isomorphic to the existing 7Tet TetroBot, allowing for direct and intuitive "tethered" telepresence control. The TetroBot was originally proposed for space exploration, but may be valuable for search-and rescue operations. Sophisticated human control may support both locomotion (crawling) and applying force to the environment.



The TetroCon is roughly tubular, like many human organs. If TetroBots can be scaled down, the TetroCon can allow control of *in vivo* medical robots acting as as endoscopes and arthroscopes. It may even be a basis for biosensing of body positioning.



Future Work

I. Control of the TetRobot

The TetroCon is intentionally isomorphic to the TetRobot. We intend to test the hypothesis that the TetroCon allows a practiced operator to locomote the TetRobot over obstacles and within pipes.

II. Mechanical Improvements

While maintaining the tetrahelical configuation, we intend to improve the mechanical robustness and ease-of-use of the TetroCon.

III. Optical Sensing

The mechanical nature of the displacement sensing allows the accumulation of error. We believe a computer-vision based approach using multiple cameras will eventually allow a more accurate and scalable TetroCon.

IV. Biosensing

The TetroCon can in principle be worn over the arm and sense positioning of the arm. We intend to experiment with this capability, perhaps in conjunction with electronic tethering to the TetRobot.

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