# Article information:

Propulsion
<https://s2.smu.edu/~pkrueger/propulsion.htm>

# Article summary:

1. The Experimental Fluid Dynamics Laboratory at Southern Methodist University is investigating pulsed-jet micropropulsion for small vehicles, using a self-propelled pulsed-jet vehicle called Robosquid.

2. The lab is also studying squid locomotion throughout ontogeny, using digital particle image velocimetry to investigate the jet hydrodynamics and propulsive efficiency of squid jet locomotion from hatchling up to adult.

3. The research aims to provide insight into propulsion system design for micro- or mini-scale systems and has been supported by grants from the National Science Foundation.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article discusses two projects related to propulsion: Pulsed-jet Micropropulsion and Squid Locomotion throughout Ontogeny. The Pulsed-jet Micropropulsion project focuses on developing micro-sized vehicles that can be used for various applications, such as undersea exploration and microsurgery. The project uses a self-propelled pulsed-jet vehicle called Robosquid to investigate the performance of pulsed jets in the micropropulsion environment. The article provides details about the design of Robosquid and its performance optimization strategies.

The Squid Locomotion throughout Ontogeny project investigates the jet hydrodynamics and propulsive efficiency of squid jet locomotion from hatchling up to adult using digital particle image velocimetry (DPIV). The study found that squids utilize two jetting modes: short jet pulses leading to isolated vortex rings (mode I) and longer pulses with a leading vortex ring pinched off from a trailing jet (mode II). The article also highlights the remarkable flexibility of squid propulsion and gives insight into propulsion system design for micro- or mini-scale systems.

Overall, the article provides detailed information about both projects, including personnel involved, publications, and acknowledgments. However, there are some potential biases in the article. For example, it only presents positive aspects of pulsed-jet propulsion schemes at small scales without discussing any limitations or drawbacks. Additionally, while the Squid Locomotion throughout Ontogeny project provides valuable insights into squid propulsion, it does not explore any potential risks associated with mimicking biological systems for technological applications.

Furthermore, the article seems to be promotional in nature as it highlights the achievements of Southern Methodist University's Experimental Fluid Dynamics Laboratory without providing a balanced view of other research in this field. It also lacks counterarguments or alternative perspectives on these projects.

In conclusion, while the article provides valuable information about two interesting projects related to propulsion, it could benefit from a more balanced and critical approach that explores potential limitations, risks, and alternative perspectives.

# Topics for further research:

* Limitations of pulsed-jet propulsion schemes at small scales
* Drawbacks of using biological systems for technological applications
* Alternative perspectives on micropropulsion design
* Criticisms of squid locomotion research
* Comparison of different propulsion systems for micro- or mini-scale applications
* Risks associated with developing micro-sized vehicles for undersea exploration and microsurgery.

# Report location:

<https://www.fullpicture.app/item/c48b902f3a73e6b88d40006f08d02dfa>