

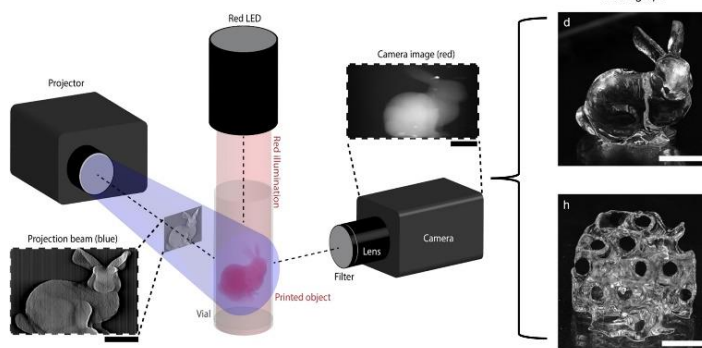
Opportunity: PhD Student in Mechanical Engineering

Fabrication of multi-material devices using Volumetric Additive Manufacturing (VAM)

Professor Dr. Bosco Yu at the Department of Mechanical Engineering at the University of Victoria (UVic) is seeking to hire a **PhD student** to support a project on volumetric additive manufacturing of multi-material devices. This will be a collaboration between the University of Victoria’s Hybrid 3D research lab (H3D) and Dr. Antony Orth at the Digital Technologies Research Centre, National Research Council of Canada (NRC).

Project context:

Additive manufacturing (AM) technologies have become indispensable for both rapid prototyping and production in low-to-medium volume applications. However, most AM technologies produce parts in a single type of material, limiting the mechanical, optical, and electrical properties they can achieve. Recently, NRC has been advancing a new type of 3D printing called volumetric additive manufacturing (VAM).



VAM is a light-based technique that uses computed tomography concepts to print entire objects in seconds. Moreover, VAM can be used to print a material on top of another existing 3D object, a process called overprinting. In this project, the student will investigate overprinting for biomedical devices. In particular the student will assess printability of certain lattice geometries, develop printer technologies to enable and improve precise overprinting in VAM, and test the mechanical properties of printed devices. These proof-of-principle devices will enable researchers to investigate the treatment of medical conditions that cannot be treated with the current state of biomedical probes and implants.

Skills and Background of Candidate:

You are an individual who can work independently and has the ability to adapt and overcome the challenges and uncertainties that are typically associated with research & development. You are passionate about materials development, solid mechanics, and aircraft design.

Technical Skills	Non-Technical Skills
<p><u>What is required:</u></p> <ul style="list-style-type: none"> • Experience in CAD. • Basic knowledge in optics and/or image processing. • Basic abilities computer programming (eg. Python) • Good understanding of solid mechanics. 	<p><u>What is required:</u></p> <ul style="list-style-type: none"> • Fluent in English. • Strong communication skills, both oral and written. • Evidence of commitment and openness to training, learning and discussion. • Evidence of strong work ethic (e.g. exceeding expectations, going above and

What is desired:

- Strong knowledge in optics and/or image processing.
- Advanced computer programming skills.
- Knowledge of computed tomography mathematics.
- Enjoy building and fabricating things.
- Interest in 3D printing
- Interest in biomedical devices.

beyond assigned duties, demonstrating initiative).

- Demonstrated ability to work independently and as part of a team.

What is desired:

- Demonstrated professional communication with supervisor and collaborators.
- Have published research papers or authored technical reports.

Why you should join us:

You will have the opportunity to further your academic experience and qualifications, and to learn from world class research labs at UVic and NRC. The position is funded at a level comparable with NSERC scholarships, and top-up funding is available to those with scholarships. You will have exciting opportunities to apply your research to a real-world problem and collaborate with industry partners. In this project, you will also be closely collaborating with and building connections with scientists in one of Canada's largest government research organizations (NRC). The Hybrid 3D lab is located in Victoria on the traditional territory of the Ləkʷəjən and W̱SÁNEĆ peoples, among the beautiful landscapes of British Columbia; a wonderful place to live and learn!

How to apply?

Fill in the following form (not by email): <https://www.hybrid3dlab.com/apply>

Closing Date: The search will continue until the position is filled (at which time the above form will be closed)

Expected Start Date: September 1st, 2024