

MEng/MASc Graduate Research Project (2 Positions)

3D Printing Structural Battery Components for Electric Vehicles (EVs)

This research position is at the Center of Bio-composites and Bio-polymers (CBBP), University of Toronto. EVs are rapidly evolving and revolutionizing the automobile industry, this generates high demand for innovative breakthroughs in battery technology. This project deals with developing battery components such as cathode, anode, and separator with additive manufacturing. Structural battery has two functions: 1) Energy storage & 2) Sustain mechanical load. Therefore, developing multifunctional materials is at the core of this research project.

Some attributes preferred in candidates are:

1. Belongs to Mechanical, Chemical or Materials background.
2. Passionate and knowledgeable about EV and battery technology.
3. Operated desktop 3D printers and optimized printing parameters.
4. Prior experience with additive manufacturing technologies such as FDM/FFF, SLS, SLA or DIW.
5. Material characterization experience for properties like rheology, conductivity and mechanical strength.
6. Worked with high performance engineering plastics like Nylon (PA), Ultem (PEI), PEEK or PVDF.
7. Worked with Carbon Fiber composites.

Developing Lightweight EMI shielding material with additive manufacturing

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Some attributes preferred in candidates are:

1. Belongs to Mechanical, Chemical or Materials background.
2. Operated desktop 3D printers and optimized printing parameters.
3. Prior experience with additive manufacturing technologies such as FDM/FFF, SLS, SLA or DIW.
4. Material characterization experience for properties like rheology, conductivity and mechanical strength.
5. Worked with high performance engineering plastics like Nylon (PA), Ultem (PEI), PEEK or PVDF.
6. Knowledgeable and interested in EMI shielding applications and polymer foams