

**Thesis Opportunities for Master’s and PhD Students in the Maroun Semaan Faculty of Engineering and Architecture (starting Academic Year 2021-2022)**

February 7, 2022

How to apply: Applicants should directly contact the faculty listed on the project that is of interest.

	<b>Project description (up to 150 words)</b>	<b>Thesis level (Masters, PhD)</b>	<b>Any necessary background</b>	<b>Research supervisor name</b>	<b>Research supervisor email address</b>
1.	<p>Two industry funded PhD opportunities are available in the domain of Optimization in Oil and Gas Field Development Planning. The focus will be on developing optimization methods and machine learning models for well placement &amp; operation and surface facility planning.</p> <p>Developed methods need to be uniquely efficient to be used in real field development planning projects. Close collaboration will take place with Schlumberger, the funding company, to steer the research, test the algorithms on real projects and implement the successful methods in commercial solutions.</p> <p>The research program benefits from a unique cross-pollination environment resulting from interaction and collaboration of researchers with different technical backgrounds.</p>	PhD	Students from all Engineering backgrounds with strong mathematical and programming skills are encouraged to apply.	Kassem Ghorayeb	<a href="mailto:kg17@aub.edu.lb">kg17@aub.edu.lb</a>
2.	<p>This multi-disciplinary project investigates the impact of driver and autopilot driving intention communication on road safety of conditionally automated (SAE Level 3) vehicles. The graduate student will contribute towards developing Human Machine Interfaces (HMI) (visual, auditory, haptic) for conditionally-automated</p>	Masters	Engineering students with strong programming skills and interest in working on HMI interfaces. 3D	Maya Abou Zeid, Daniel Asmar, Naseem Daher, Imad Elhajj	<a href="mailto:ma202@aub.edu.lb">ma202@aub.edu.lb</a>

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	vehicles, so as to ease the handover and takeover of the driver with the autopilot of the autonomous vehicles.		graphics capabilities are a plus.		
3.	<p>The geomechanics group at MSFEA is looking for a graduate research assistant to work on a research project to understand injection-induced seismicity due to hydraulic fracturing and enhanced geothermal operations.</p> <p>Injection-induced seismicity has been linked to hydraulic fracturing operations and to geothermal energy exploration. The work aims at exploring the possible mechanisms and the hydro-geological factors responsible for the seismic events observed due to hydraulic fracturing of hydrocarbon reservoirs and enhanced geothermal systems. The analysis will be performed using numerical simulations.</p>	Masters	<ul style="list-style-type: none"> <li>• Bachelor's degree in Sciences or Engineering</li> <li>• Knowledge on geomechanics and experience in finite element modeling is preferred</li> </ul>	Elsa Maalouf Alissar Yehya	<a href="mailto:em40@aub.edu.lb">em40@aub.edu.lb</a>