

# UM CEE PhD Position 2021

| Geotechnical Engineering |  |
|--------------------------|--|
| <b>Research Topic 1</b>  | Uncertainty analysis for underground engineering   |
| <b>Research Topic 2</b>  | Experimental and theoretical study on slurry infiltration  |
| <b>Instructor</b>        | Wanhuan ZHOU, Professor<br><a href="https://www.fst.um.edu.mo/people/hannahzhou/">https://www.fst.um.edu.mo/people/hannahzhou/</a> |
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| Environmental Engineering |   |
|---------------------------|---|
| <b>Research Topic 1</b>   | Real-time mass spectrometric characterization of atmospheric fine particle matter and volatile organic compounds  |
| <b>Research Topic 2</b>   | Aqueous-phase photolysis and oxidation reactions of atmospheric particulate organic matter and their impacts on hygroscopicity and optical property   |
| <b>Instructor</b>         | Yongjie LI, Associate Professor<br><a href="https://www.fst.um.edu.mo/people/yongjieli/">https://www.fst.um.edu.mo/people/yongjieli/</a><br><a href="https://www.fst.um.edu.mo/personal/yongjieli/">https://www.fst.um.edu.mo/personal/yongjieli/</a> |
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| Geotechnical Engineering |  |
|--------------------------|--|
| <b>Research Topic 1</b>  | Site investigation with surface wave   |
| <b>Research Topic 2</b>  | Geomechanics, soil structure interaction   |
| <b>Instructor</b>        | Thomas Man-Hoi LOK, Associate Professor<br><a href="https://www.fst.um.edu.mo/people/mhlok/">https://www.fst.um.edu.mo/people/mhlok/</a> |
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| Structural Engineering  |   |
|-------------------------|---|
| <b>Research Topic 1</b> | Mechanical and structural performances of 3-D printed high performance metallic members   |
| <b>Research Topic 2</b> | Advanced analysis and design for cold-formed stainless steel tubular members  |
| <b>Instructor</b>       | Wai-Meng QUACH, Associate Professor<br><a href="https://www.fst.um.edu.mo/personal/wmquach/">https://www.fst.um.edu.mo/personal/wmquach/</a><br><a href="https://scholar.google.com/citations?user=PMt3lKwAAAAJ">https://scholar.google.com/citations?user=PMt3lKwAAAAJ</a> |
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| Marine Science          |  |
|-------------------------|--|
| <b>Research Topic 1</b> | Dynamics of nutrients and phytoplankton in marine environments |
| <b>Research Topic 2</b> | Bacteria-mediated carbon cycle in oceans                       |
| <b>Instructor</b>       | Jie XU, Associate Professor                                    |
| <b>E-mail</b>           | <a href="mailto:xujiehk@gmail.com">xujiehk@gmail.com</a>       |

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| Structural Engineering  |  |
|-------------------------|--|
| <b>Research Topic 1</b> | Structural Health Monitoring based on Probabilistic Machine Learning   |
| <b>Research Topic 2</b> | Nondestructive Evaluation for Civil and Infrastructure Engineering   |
| <b>Instructor</b>       | Wang-Ji YAN, Associate Professor<br><a href="https://www.fst.um.edu.mo/personal/wangji-yan/home/">https://www.fst.um.edu.mo/personal/wangji-yan/home/</a><br><a href="https://scholar.google.com/citations?user=5Z_6aeMAAAAJ">https://scholar.google.com/citations?user=5Z_6aeMAAAAJ</a> |
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| Ocean Science           |   |
|-------------------------|---|
| <b>Research Topic 1</b> | Multi-scale circulation in South China Sea and numerical simulation   |
| <b>Research Topic 2</b> | Estuary-Shelf water exchanges in Northern South China Sea   |
| <b>Instructor</b>       | Zhongya CAI, Assistant Professor<br><a href="https://www.fst.um.edu.mo/people/zycai/">https://www.fst.um.edu.mo/people/zycai/</a> |
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| Civil Engineering       |  |
|-------------------------|--|
| <b>Research Topic 1</b> | Simulation of storm-induced compound flood hazards in low-lying coastal cities. Forecasting the floods on multiple scales using remote sensing and numerical modelling approaches. |
| <b>Research Topic 2</b> | Modelling the air-sea interaction under a changing climate. Generation of the dynamic typhoon field.   |
| <b>Instructor</b>       | Liang GAO, Assistant Professor<br><a href="https://www.fst.um.edu.mo/personal/gaoliang/">https://www.fst.um.edu.mo/personal/gaoliang/</a>  |
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| Civil Engineering       |  |
|-------------------------|--|
| <b>Research Topic 1</b> | Probabilistic machine learning for structural health monitoring  |
| <b>Research Topic 2</b> | Structural health monitoring intelligent sensor network configuration  |
| <b>Instructor</b>       | Sin-Chi KUOK, Assistant Professor<br><a href="https://www.fst.um.edu.mo/personal/sckuok/">https://www.fst.um.edu.mo/personal/sckuok/</a> |
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| Geotechnical Engineering |   |
|--------------------------|---|
| <b>Research Topic 1</b>  | Space-Airborne-Ground based landslide recognition and early warning   |
| <b>Research Topic 2</b>  | Data-driven geotechnical subsurface mapping and life-cycle reliability  |
| <b>Instructor</b>        | Ping SHEN, Assistant Professor<br><a href="https://www.fst.um.edu.mo/personal/pingshen/">https://www.fst.um.edu.mo/personal/pingshen/</a> |
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| Hydraulic Engineering   |   |
|-------------------------|---|
| <b>Research Topic 1</b> | Quantitative storm surge risk assessment  |
| <b>Research Topic 2</b> | Big data and AI based flooding monitoring and early warning   |
| <b>Instructor</b>       | Ping SHEN, Assistant Professor<br><a href="https://www.fst.um.edu.mo/personal/pingshen/">https://www.fst.um.edu.mo/personal/pingshen/</a> |
| <b>E-mail</b>           | <a href="mailto:pingshen@um.edu.mo">pingshen@um.edu.mo</a>  |

| Ocean and Coastal Engineering |   |
|-------------------------------|---|
| <b>Research Topic 1</b>       | Application of machine learning methods to prediction of storm surge  |
| <b>Research Topic 2</b>       | Dynamics and numerical model of submarine landslides  |
| <b>Instructor</b>             | Huabin SHI, Assistant Professor<br><a href="https://www.fst.um.edu.mo/people/huabinshi/">https://www.fst.um.edu.mo/people/huabinshi/</a><br><a href="https://www.researchgate.net/profile/Huabin-Shi">https://www.researchgate.net/profile/Huabin-Shi</a> |
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