# Research project and supervisor team

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| **Supervisory Team** | Yunming Yang (lead supervisor) |
| **Short introduction & description of research project** | Tunnel construction is one of the most important tasks in the sector of civil engineering in China. Tunnels are being constructed in almost all big cities in China. There are many problems facing tunnel construction industry in the city of Ningbo. Ningbo is a coastal city, characterized with very soft clay in its ground profile. Poor properties of soft clay pose higher risks in underground construction, and it also significantly increases the construction cost. In addition, a state-of-the-art tunnel boring machine (TBM) is used in Ningbo tunnel construction in some subway lines, the near-rectangular TBM. Instead of spherical shape, its cross section is nearly rectangular. A series of studies are being conducted on tunneling in Ningbo, including physical modeling, theoretical analysis, numerical modeling and on-site investigation. This project concerns numerical and theoretical study, which are complemented by physical modelling and on-site investigation. Cutting-edge soil models considering the principal stress rotation will be used in its numerical study.<br>Some allowance can come from two research projects. |
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