



## Master's thesis (30 ECTS)

MT\_68

<b>Working title</b>	Ring closure in conventional tunnelling – Study of cases from German-speaking regions of Europe
<b>Project objectives</b>	Detailed study of some cross-sections from conventional tunnel drives in German-speaking regions of Europe, which have been excavated partially resulting to a delayed ring closure, and which have failed sooner or later. Discussion of the question whether a different moment of the ring closure could have prevented failure. Differentiation of cross-sections in different rock masses, and with or without yielding elements. Study of publications and project documents required. If needed, hypotheses shall be validated with simple analytical or numerical calculations. Full-face excavations are of no interest.
<b>Student has enthusiasm for</b>	conventional tunnelling; tunnelling processes and operations; design of shotcrete liners; stresses and internal forces within shotcrete liners
<b>Requirements on student</b>	Thesis and communication in English (even though most documents to study might be in German); presentation to and discussion with cooperating partners
<b>Start (earliest / latest)</b>	Immediately / April 2021
<b>Project term (min. / max.)</b>	6 months / 8 months
<b>Coop. with external institution</b>	Tokyo Metropolitan University (TMU, Japan)
<b>Possibility of remuneration</b>	no
<b>Contact person</b>	Alexander Kluckner (kluckner@tugraz.at, +43 316 873 4226)