Other information:

We may provide some additional funding from the VW Foundation for work on the first topic "Genetic Transfer for Solving Combinatorial Multi-objective Problems in Operation Research and Management"

The interested student may find the following abstract, of the VW funded research, useful as a background to the proposed research work:

AI to the Rescue: Life-and-Death Decision-Making under Conflicting Criteria

During major natural or man-made disasters, inadequate decisions on the supply of food, water, energy, shelters, medical and mental care, could have devastating impacts. In such events, "life-and-death" decisions are made under time constraints, dynamic conditions, conflicting expectations, incomplete and uncertain information, infrastructure failures and insufficient resources to meet all urgent needs. Modern technologies enable the development of dedicated AI-based Decision-Support-Systems (DSS) for such abnormal conditions. Yet, the required decisions often involve conflicting and incomparable criteria (e.g., cost versus human survival and well-being). This raises questions concerning the rationalizability, subjectivity and ethical considerations of the involved decisions. Moreover, there is a need to investigate the levels-of-trust in utilizing such AI-based systems. To explore the key socio-technical aspects of "AI to the Rescue," we will rely on experienced decision- and policy- makers, as-well-as researchers from engineering, social and medical sciences. The envisioned research will focus on decisions concerning emergent medical operations during major disasters. The suggested consortium will provide fresh ideas on the required AI-based DSS, in view of the unveiled socio-technical aspects.