Positive identification of a person from skeletal or semi-skeletal remains after a crime or mass disaster, such as Malaysia Airline flight MH17 (2014) and the tsunamis that hit Thailand (2004) and Japan (2011), is required by authorities and involves experts from a variety of disciplines.

Positive identification is based on a characteristic that is unique to a specific individual. Unqiue characteristics include fingerprinting, DNA and dental history. Often these identifying characteristics are no longer available due to burn damage, skeletonization or mutilation. In these cases, alternative methods are used to affect personal identification. Law enforcement organizations resort to methods such as forensic anthropology that can provide a biological profile through skeletal analysis and facial approximation, where a face is predicted from a skull of which the identity is not known. In contrast, skull-photo (or skull-video) superimposition is applied when a skull from unknown origin have to be matched to one or more missing persons with known identities. In cases where children are involved, craniofacial changes due to facial growth in the prepubescent and pubescent stages complicate the identification process of juvenile remains. Typical applications of juvenile craniofacial identification are approximation of a face from skeletal remains and aging of a child's face where only old photographs of the child are available. Another form of personal identification is forensic image comparison which is performed on living individuals suspected of a crime. In these cases it is often expected of the forensic analyst to use poor CCTV or other images in order to make a positive identification of the suspect(s) in custody. These alternative methods used to attain personal identification are used to make a presumptive identification and to exclude persons rather than to positively identify an individual.

The field of human identification is not only concerned with scientific processes, but also have to take the Belmont Report’s (1979) ethic principles of justice, beneficence and respect for a person's autonomy into account. Although the Declaration of Helsinki (2013) predominately speaks to ethical conduct of research involving living humans, researchers working with deceased persons should take note of certain sections regarding informed consent (of the next of kin) to conduct research, the dignity of the deceased (privacy and confidentiality), scientific rigour of research, being appropriately qualified to conduct research and disseminating information to the broader scientific community and society. Research regarding ethical issues where human remains are used for data collection is neglected and should, in accordance with social factors and legislation be addressed.

The identification of humans whether it is from skeletal remains or living individuals, is problematic as relies on a variety of techniques, as well as the skills and expertise of many role players in the investigational process. The scientific basis of methodologies of many identification techniques has to adhere to jurisdictional standards, and as a result, is constantly being tested and questioned in courts of law. Validity and reliability are challenges faced by all in the field of human identification. Human identification based on morphological assessment is no longer good enough and has to be validated by robust methods that will withstand rigorous scrutiny from prosecutors (as seen after the Daubert ruling) and others who have a vested interest in the field. The increasing numbers of missing persons world-wide, adults and juvenile, place constant pressure of those involved with personal identification to find novel approaches to old problems and to develop new technologies. However, in countries where infrastructure is problematic, advancement will be achieved through new application of prevailing expertise and equipment.

Evidently, human identification is a diverse and complex field which faces may challenges, but at the same time, many opportunities exist to achieve significant strides for benefit of future generations.