Almost 1.2 million people die each year in road traffic accidents, with fatalities for children aged 5-9 years four times greater than for adults (Toroyan & Peden, 2007). This talk will outline the perceptual problems encountered when a pedestrian standing at the kerb waiting to cross, or equivalently, a driver is waiting to pull out from a junction. I will then outline a series of experiments that measure perceptual thresholds for the detection of vehicle approach, and the discrimination of vehicle approach speed in a large typical road user population (~400 participants); in children ranging from 6-11 years of age (~100 participants) and then in drivers over the age of 75 years. This will highlight that there is a problem that has arisen as a consequence of increasing transport speeds over the past 50 years that results in many typical road users having relatively poor discrimination of vehicle approach speeds. This in turn may lead to increased accident risk in some scenarios. The problem is inflated in the case of younger children and older drivers, such that the traffic speeds they can cope with are sometimes below the regulated traffic speeds in many urban areas. The issue of perceptual acuity and discrimination threshold also serves to explain why motorcyclists are over-represented in the accident statistics for vehicle collisions at junctions. Although “lack of attention” will certainly be the cause of some traffic accidents, attention is not just a top-down process but is also bottom-up and captured by salient stimuli arising in a road scene. Where perceptual stimuli are below an observer’s threshold then they both fail to capture attention and also render any judgement of vehicle approach as unreliable. There are a number of factors that dictate risk in traffic situations, such as driver aggression and conformity, but the take home message of this talk is that understanding visual processing is also essential to understanding the general limits of human performance and why those limits can be breached even in everyday traffic situations where road users are conforming to traffic regulations.