Transport Systems and Public Health: the Case of Traffic Congestion

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Abstract: In the context of transport systems, traffic congestion is always presented as an operational issue with negative socio-economic impacts. Rarely in engineering research and curricula is congestion portrayed as a public health issue, a stress causing factor, as in fact it is. It is accepted that repeated and prolonged driving in congested traffic conditions is a form of chronic stress and a serious health risk in the long run. Managing stress in difficult traffic conditions is a multifaceted activity in which proper traffic control can play a significant part. In this talk I will explain the human health side of traffic congestion and connect that to known and quantifiable traffic phenomena that, for modeling purposes, may be used as stress markers. Traffic control can thus be optimized with explicit consideration of stress. A case of a "health-sensitive" control algorithm for congested signalized systems will be presented where control parameters are optimized to explicitly reduce the occurrence and intensity of unhealthy traffic stress-inducing conditions. Implications of this outlook and findings to practice and research, and need of future work will be highlighted.

Bio: *Ghassan Abu-Lebdeh* is Associate professor of civil engineering/transportation at the American university of Sharjah, UAE, and currently a visiting scholar at the Human Factors and Statistical Modelling Lab at the University of Washington, Seattle, USA. Dr. Abu-Lebdeh's areas of research interest/teaching are optimization of traffic operations, and sustainability in transport systems. He completed his studies at the University of Illinois at Urbana-Champaign (Ph.D.), USA. Before that then he did his MS at the University of New Brunswick, Canada, and his BS at Yarmouk University, Jordan, all in Civil Engineering. His academic and industry experience spans 25 years in transportation systems operations and planning with periods at Michigan State University, University of Kentucky, and the Metropolitan Planning Organizations in Worcester, Massachusetts, and in Urban-Champaign, Illinois.