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Title	**Overcoming estimation issues with advanced models in large scale applications through indirect inference**
Track	General Papers
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Abstract	The field of choice modelling has seen many exciting developments in the last couple of decades, primarily in the form of models allowing for complex correlations structures between alternatives and flexible variations in sensitivities across decision makers. While the added computational burden of these models is a nuisance in academic work, it has severely limited the appeal and use of such models in large scale applied work, where the number of alternatives and attributes tends to be much larger. As an example, many models of joint mode and destination choice have tens of thousands of alternatives, and dozens of parameters. This is very different from most academic studies, and makes the estimation of even Multinomial and Nested Logit time consuming. With the benefits of advanced models potentially being even more important in the complex decision processes studied in applied work, this presentation looks at the use of a technique recently introduced into transport research for such cases. The method, known as indirect inference, relies on understanding the relationship between the parameters of simple and complex models for a given dataset and thus being able to 'predict' the parameters of advanced model structures without actually estimating them on the data. The presentation illustrates the potential benefits of this technique in two separate applications, the use of a cross-nested logit model for joint mode and destination choice, and the use of a random regret minimisation model for station choice.