Methodology for Competence Assessment in Large-Scale Surveys : Measurement Models

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Item response theory has been seen mainly as a technique to solve a certain class of technical problems in measurement applications, principally those problems that involve usage or manipulation of subsets of items (or single items) from an instrument: For example, using a subset of the items of a whole test, or even, using a single item at a time, as in CAT. This mini-course will introduce and develop a class of item response models that can indeed be used to deal with such problems, but a second principal focus of the lectures will be to discuss how these models can be used to help address the fundamental task of measurement: The construction of meaningful latent variables, and the analysis of evidence about the validity and reliability of the instruments used to measure those variables.

Topics to be covered will include:

(i) Measurement Models: Why, What, and How?
(ii) Constructing Measures—The BEAR Assessment System;
(iii) Quality control—reliability and validity evidence using the Wright Map;
(iv) An introduction to multidimensional measurement using Rasch Models;
(v) Using measurement models in large-scale assessment;
(vi) An introduction to Explanatory Item Response Modeling.

Bibliographie


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à l’ENSAE 3, Avenue Pierre Larousse, Malakoff (Métro : Malakoff/Plateau de Vanves)

Ces cours sont proposés aux étudiants de 3ème année de l’ENSAE, de l’ENSAI se préparant à la recherche et ouverts aux étudiants de M2 ou inscrits en thèse. Une inscription préalable est demandée impérativement pour tous les étudiants de l’ENSAE, de l’ENSAI, ou extérieurs, par courriel à guedj@ensae.fr ou par tél. au 01 41 17 35 50, afin de pouvoir être admis dans les locaux de l’ENSAE. Les renseignements sur le contenu et les dates de ces cours peuvent être obtenus au 01 41 17 35 50.
To determine the origin of neural crest genes, we analyzed Phenotype Ontology annotations to select genes that control the development of this tissue. Using a sequential blast pipeline, we phylogenetically classified these genes, as well as those associated with other tissues, in order to define tissue-specific profiles of gene emergence. Of neural crest genes, 9% are vertebrate innovations. This gene is called the "lethal gene" because the crest is formed through a hole in the top of the duckling's skull. Below are two photos of a crested call duckling. The first photo shows the duckling as it is still drying off in the hatcher tray; you are clearly able to see the duckling's large crest-hole. The second photo shows the same call duckling one day later; you can see how the crest fluffed up and completely covered the bald, swollen area on the skull of the duckling. SNPs in this gene region have been suggestively associated with the vertical position of the sublabial sulcus, relative to the central midface (5). The region of association identified here overlaps with two craniofacial-specific enhancers (Fig.1). The cranial neural crest cell population is the major driver of facial outgrowth and differentiates into the cartilage and bony elements of the face (among other tissues) that principally determine facial structure (40).