SCHOOL OF INFORMATICS, COMPUTING, AND ENGINEERING

CENTER FOR BIOINFORMATICS RESEARCH TALK

Susan Walsh

IUPUI-Dept. of Biology-Forensic & Investigative Sciences Program

Thursday, November 29, 2018

2:00 pm

Luddy 3006

Understanding human physical appearance and its prediction from DNA

Abstract: Forensic DNA Phenotyping (FDP), i.e. the prediction of human physical appearance from DNA, has become a fast growing discipline within forensic genetics due to the intelligence information that can be generated from DNA traces. FDP outcomes can help focus police investigations in search of unknown perpetrators, who are generally unidentifiable via comparable Short Tandem Repeat (STR) DNA profiling i.e. no suspect or DNA database match. Recent research in studying the genes and, more specifically, the variants that are responsible for physical appearance characteristics have made incredible strides in the last few years, particularly in the advancement of eye, hair, and skin color prediction. This presentation is designed to give an overview of several prediction systems e.g. HIrisPlex-S, including cases where they have been used. Lastly it will cover current research in the field of predictive biometrics and what is possible with regards sketching a biological mugshot of an individual from DNA.

Biography: Dr. Susan Walsh is an Assistant Professor at the Department of Biology at Indiana University Purdue University Indianapolis. Dr. Walsh completed her PhD in Forensic Genetics at Erasmus University in the Netherlands. She went on to complete postdoctoral work at Yale University before joining IUPUI in 2014. The majority of her research is focused on understanding the genetics of human physical appearance and developing prediction systems for forensic and anthropological usage. So far, she has helped develop (with collaborators in The Netherlands) prediction systems for pigmentation (eye, hair and skin color) and hair structure from DNA. She is currently working on understanding the genetics behind cranio-facial variation with collaborators in the US and Belgium, to enable biometric comparisons using projections solely obtained from DNA.

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