ABSTRACT
In this present world, it is becoming a challenge for each and every one of us on how to judge people’s behavior for different situations and also to make effective decisions at different situations. Psychology gives us a clear impact regarding all these aspects but still it is not properly guided to a large mass. Even-though, Psychology based mathematical models are available to predict people’s decisions at different situations, it is better to adopt Machine learning computational models used by industries for better and consistent decision making. This paper describes various researches conducted by experts to link Machine learning with Psychology to go beyond considering changes in individual tasks.

1. INTRODUCTION
Despite a century of considerable progress in clinical psychology and psychiatry, diagnoses are still unclear (Freedman et al. 2013, Hirschfeld et al. 2003), prognoses remain uncertain (Wunderink et al. 2009), and psychotherapeutic or pharmaceutical treatments are often effective in only 30–50% of patients (Hofmann et al. 2012, Rush et al. 2006, Wong et al. 2010). While there are many reasons why greater advances have not been made (Insel & Cuthbert 2015, Insel et al. 2010, Kapur et al. 2012) we consider the issue in terms of the ways in which we approach problems, design research, and analyze data through the lens of the dominant statistical framework. One of the most exciting applications of machine learning in psychological science has been the development of assessment tools that can predict personality traits using digital footprints such as Facebook (Youyou, Kosinski, & Stillwell, 2015) or Twitter profiles (Quercia, Kosinski, Stillwell, & Crowcroft, 2011). Machine learning approaches to personality assessment involve automated algorithms for data extraction, cross-validation, and an emphasis on prediction, as described in detail below. These methods begin by gathering a large number of digital records with little or no relation to established theory to create scales that are associated with individual differences in enduring patterns of thoughts, feelings, and behavior (e.g., Funder, 1991; Tellegen, 1991) as assessed by more traditional personality measures. The aim of the article is to provide an understanding of the machine learning approach for clinical researchers and to foster the motivation to use and improve these methods in future research.

2. GENERALIZABILITY AND CROSS-VALIDATION
Generalizability can be broadly defined as the extent to which a statistical model generated in one group performs accurately in new groups or individuals. It can be assessed in a hierarchy that includes retrospective and prospective analyses, as presented in Figure 1. For all sample designs, generalizability can be estimated by directly applying the models to a new sample, with computer simulations, or with a combination of both techniques (Filzmoser et al. 2009, Koutsouleris et al. 2016, Stone 1974). Within a machine learning framework, generalizability is estimated, and can be optimized, using simulations that resample
The nested CV design is powerful because parameters or features that optimise generalizability to test subjects in the inner, nested CV1 cycle can be learnt before the models are ultimately applied to the completely held-out subjects of the outer, CV2 cycle (Varma & Simon 2006).

3. PREDICTION ON PSYCHOLOGICAL CHARACTERS

Machine learning researchers use the extracted set of variables to build prediction models of users’ personality characteristics, often via linear and logistic regression analyses. These analyses are typically performed on a training subsample using multiple rounds of (k-fold) cross-validation to avoid model overfitting and to evaluate the predictive accuracy in a different subsample. That is, machine learning researchers typically split the full sample into k (typically 5-10) equally sized subsamples, build the regression model on a training subsample composed of all-but-one (k − 1) subsample, and validate this model on the excluded, testing subsample. This process is repeated k times for each subsample, and the prediction accuracy is averaged across all trials (Kosinski et al., 2016). A rapidly growing number of studies have used machine learning to predict various personality characteristics of users, with the majority focusing on the prediction of the “Big Five” personality traits (John, Naumann, & Soto, 2008).

Figure 2-BIG FIVE

Figure 3-CORRELATION

4. CORRELATION MATRIX

A correlation matrix Figure 3 based on a study by David McCabe and colleagues (McCabe, Roediger, McDaniel, Balota, & Hambrick, 2010)[2]. They were interested in the relationships between working memory and several other variables. We can see from the table that the correlation between working memory and executive function, for example, was an extremely strong .96, that the correlation between working memory and vocabulary was a medium .27, and that all the measures except vocabulary tend to decline with age.
5. CONCLUSION

The topic of machine learning encompasses an approach to problems as much as a set of specific methods. This approach fundamentally aims to learn information from multivariate data to fulfill the pragmatic goal of research translation by predicting outcomes for individuals rather than groups. We also have reviewed recent machine learning research on personality assessment, which has focused on the prediction of individual differences and comparisons to established personality measures. Machine learning research on psychology can contribute to more robust assessment tools and new insights into personality structure, processes, and development.

REFERENCES

[12] Priyanka, G. "PREDICTION OF AIRLINE DELAYS USING K NEAREST NEIGHBOR ALGORITHM."