RUBEN BLOOM
DATA SCIENTIST

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PROJECTS

AIRBNB NEW USER BOOKING COMPETITION

I entered a Kaggle competition which challenges participants to predict where a new AirBnB user will book. The data required cleaning due to missing and invalid values, feature engineering of unstructured web session data, and handling of the extreme multiclass imbalance. I used pandas, scikit-learn, numpy, and scipy together with Logistic Regression, Random Forest and XGBoost models for this competition. My entry is currently in the top 15%.

PARALINGUISTIC SPEECH ANALYSER (CHARISMA-O-METER)

I developed a system which uses signal processing to measure charisma from speech recordings. The system extracts non-verbal speech features which underlie charisma such as pauses and changes in pitch. I was able to quantify the differences between experienced and amateur speakers. My system is likely the first in the world to automatically detect "uptalk".

EMPLOYMENT

TSUCHIYA COMPUTATIONAL NEUROSCIENCE LAB, MONASH UNIVERSITY — Melbourne

Summer Intern — Nov 2013 to Feb 2014, Jul 2014

The Tsuchiya Lab is a computational neuroscience lab specializing in consciousness and attention. I explored a machine learning (SVM) approach to measuring the visual information in fly brain recordings during different levels of consciousness. This project required extensive wrangling and cleaning of fly brain recordings. Using the novel approach, I established new links between the manipulation of specific neurotransmitters and changes in visual information in the recordings.

GUIDEDTRACK

Collaborator, Research Engineer — Aug 2014 to Sep 2014

GuidedTrack was developing a platform to conduct large scale psychology experiments over the web using Mechanical Turk. In order to expand the range of possible experiments, I developed software which can measure heart rate via webcam by using skin color changes. This project required working with HTML5, Javascript, and computer vision libraries. as well as handling the unique challenges of performing real-time computer vision and signal processing in the browser. The prototype can be seen here.

EDUCATION

Monash University

Bachelor of Engineering (with Honours) in Electrical and Computer Systems 2015

Bachelor of Arts Philosophy and Psychology 2015

BEng/BA Dual-Degree Program

First Class Honors (Summa Cum Laude), GPA: 3.5/4.0

Springboard

Data Science Intensive 2016

A data science course created by curating the best data science resources available on the web and delivered with mentoring by an industry expert. Covers wrangling, databases, storytelling, visualization, inferential statistics, and machine learning.

AWARDS

MONASH GLOBAL SCHOLARSHIP — 2014

Awarded to students with outstanding grades and compelling application who are travelling on exchange study programs. Approximately 2,000 students apply for exchange programs each year.

JK ELLIS SCHOLARSHIP FOR EXCELLENCE AND LEADERSHIP POTENTIAL — 2010

Awarded to the top student starting the electrical and computer systems stream, approximately 1 out of 50.

ROBERT PARGETTER PRIZE FOR TOP STUDENT IN FIRST YEAR PHILOSOPHY — 2010

Awarded to the top student in first year philosophy. There were 800 first year philosophy students in my cohort.