

Diversity & Inclusion

Initiatives within the Wind and Marine
Energy Systems and Structures CDT

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What is D&I?

Diversity

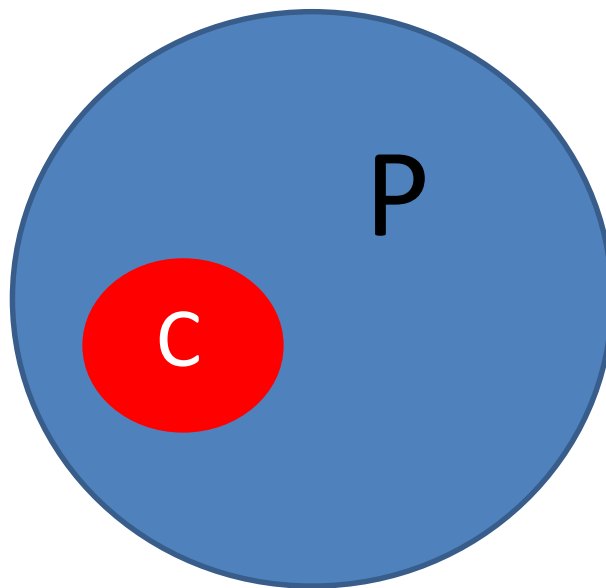
The idea that having many different voices around the table improves the discussion.

Inclusion

The creation of an environment in which these difference voices are heard, valued and encouraged.

Why do we care?

Better candidates



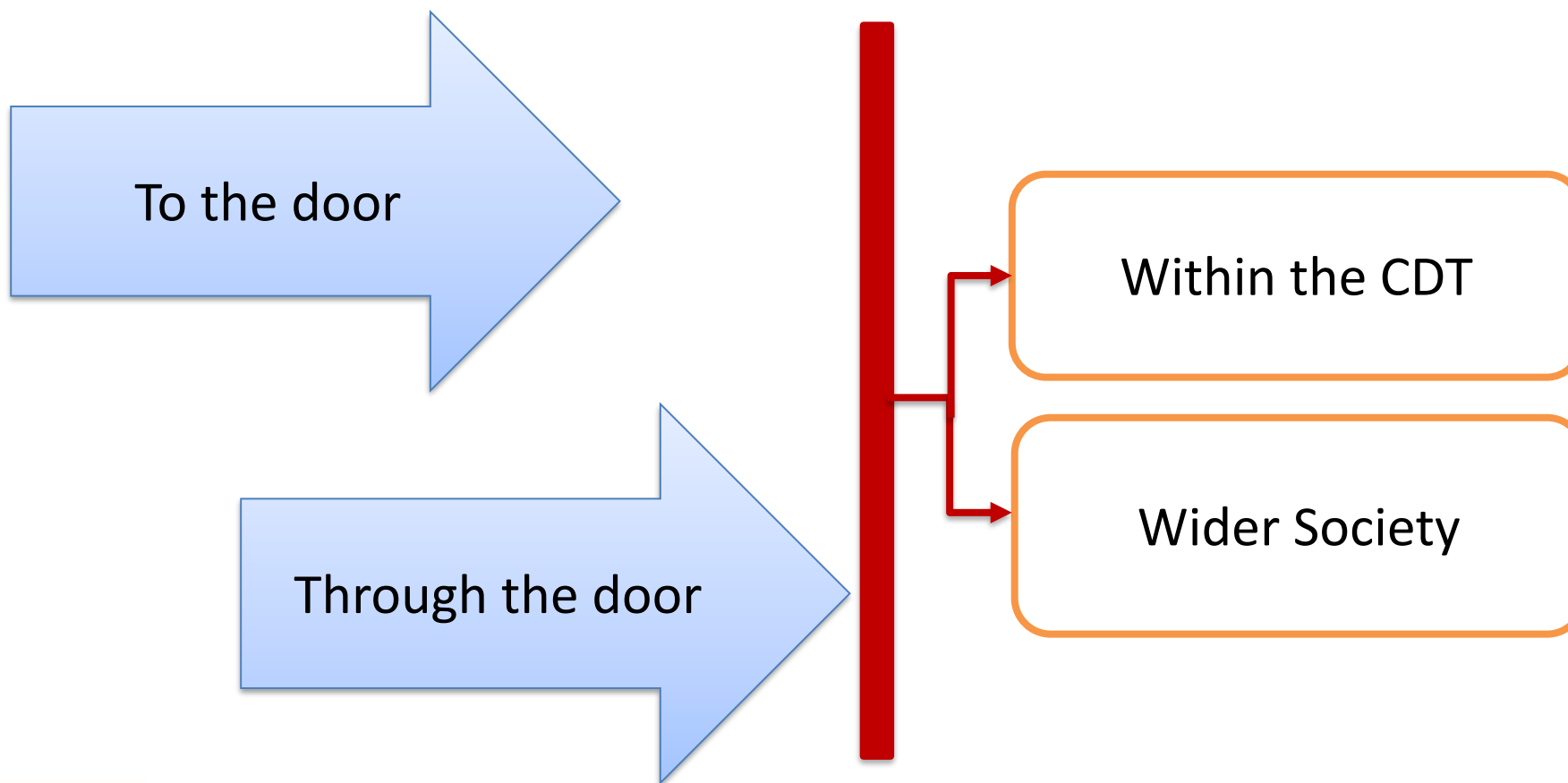
C = current applicants

P = potential applicants

Fairer society



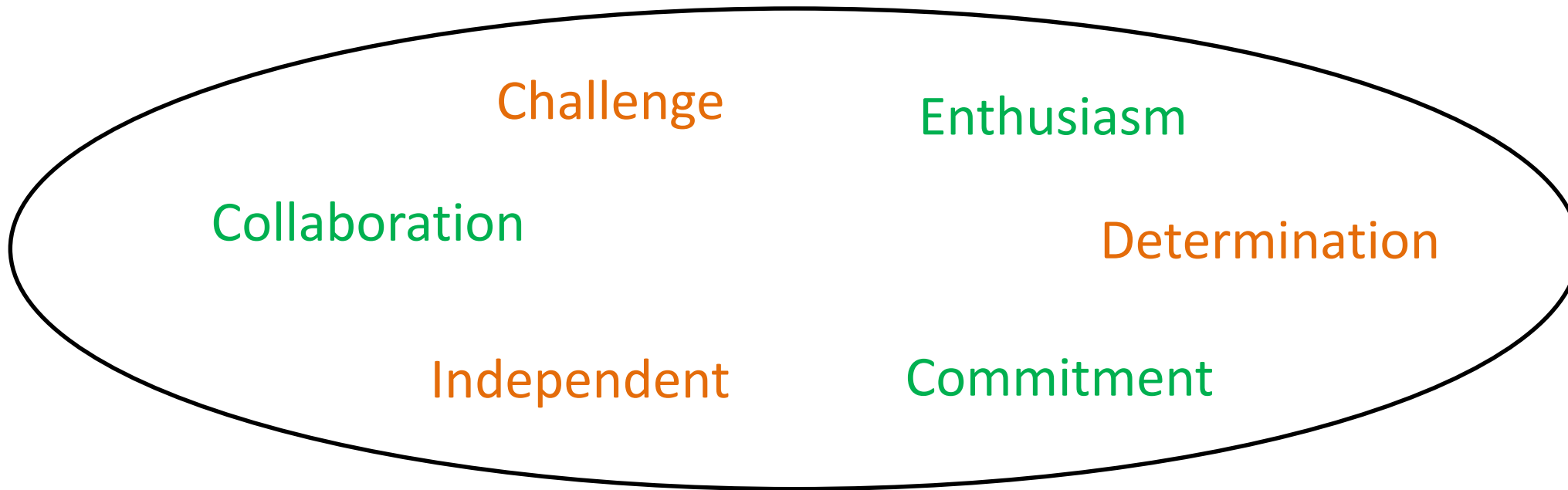
What are we doing?



“To the door” - Gender neutrality

Masculine biased words

Feminine biased words



Ideal project group

Strathclyde Game Changers Internship Program

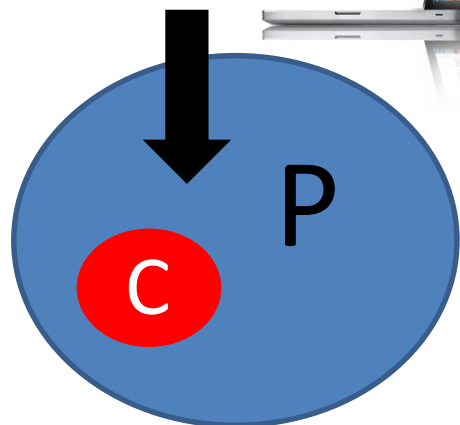
CDT internship program: the process

Advertising

Selection

Inclusion

EQUATE

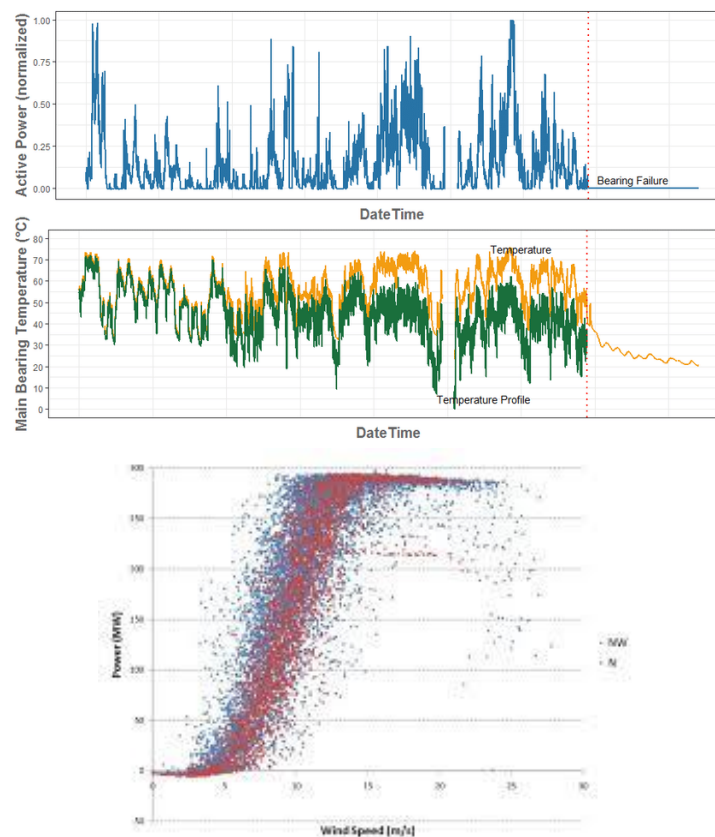


2019 Projects

Investigating Night Time Light Pollution



Wind Turbine Data Visualisation



Green Salmon Farms



Wind Turbine Data Visualisation

❖ user friendly application

Introduction

- Lots of large raw data sets
- Data often different



Quick & automated way of graphically analysing data

- Lightweight user friendly app was developed
- Tools integrated for quick analysis and export
- No knowledge of coding required

Application Overview

- Python 3.7 and Tkinter (Anconda)
- Functionalities:
 - Upload different file types
 - Plot **Time Series, Scatter Plot, Histogram, Wind Rose, Weibull Distribution**
 - Edit plots



- Resample & export data in accessible format
- Compiled as a stand-alone program
 - does **not** require Anaconda or Python to run

Uploading a file

- User inputs Timestamp format and name of the Index Column
- File variables loaded in automatically

Wind Turbine Data Visualisation - File Import

Open File
Browse A File

Load File

Enter the timestamp format
Example: 2009-12-31 20:53:45 would be %Y-%m-%d %H:%M:%S

%Y-%m-%d %H:%M:%S

Enter the name of the first (Index) column
Example: TimeStamp, TTimeStampLocal ...

TimeStamp

Modifying a dataset

Select plot type

Time range and
default sampling
frequency

Time range can
be modified

Data can be
resampled or reset

Export modified
data

Time Frame Settings

Start Menu

Time Series

Scatter Plot

Histogram

Imported data ranges from 2016-01-02 00:00:00 to 2017-12-31 23:50:00

Default data sampling frequency is 0 days 00:10:00 (hh:mm:ss)

Start date: YYYY-MM-DD(space)hh:mm:ss

default

End date: YYYY-MM-DD(space)hh:mm:ss

default

Sampling frequency: default, 10 min, 30 min, 1 h, w, m ...

1h

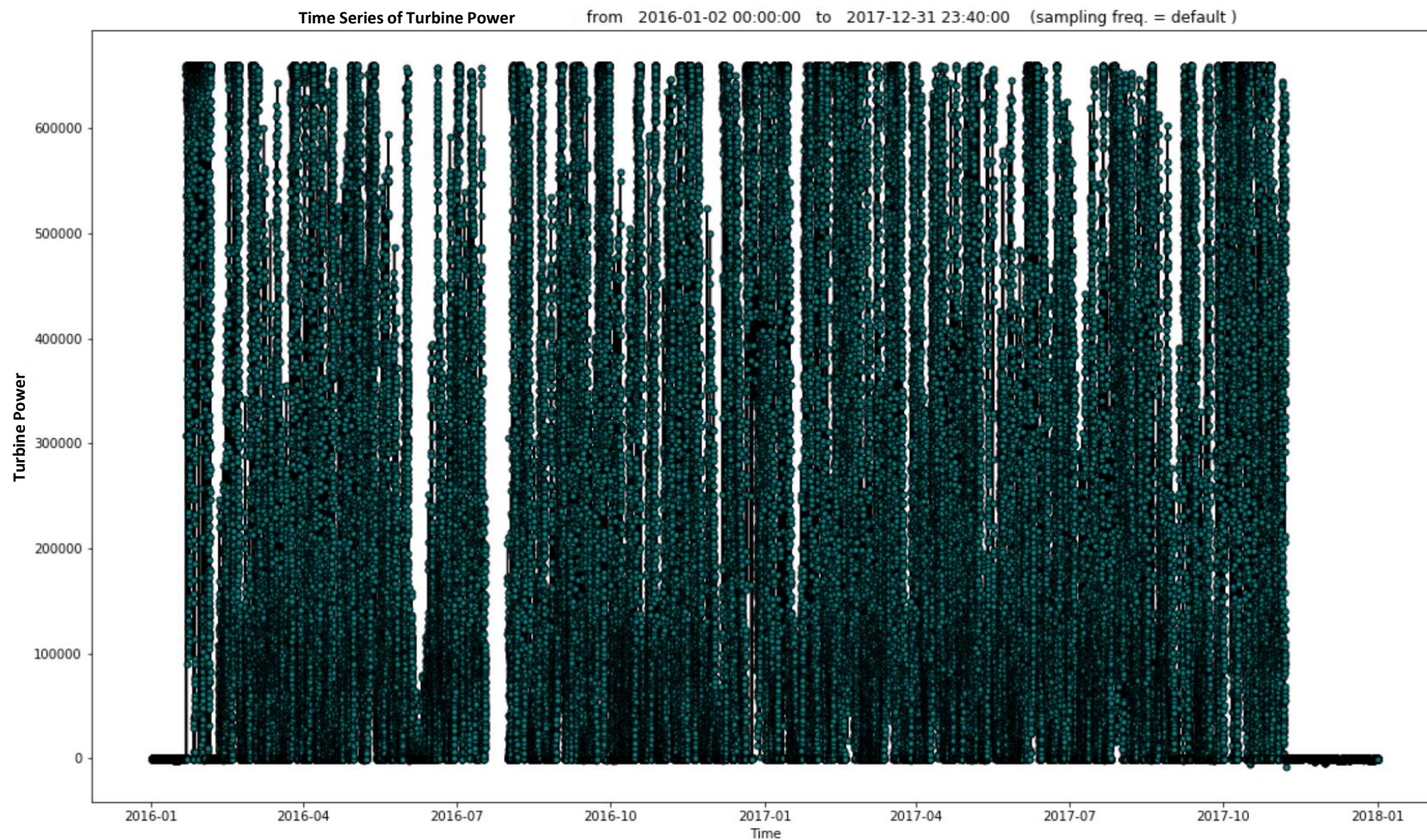
Apply

Export .csv

Export .xlsx

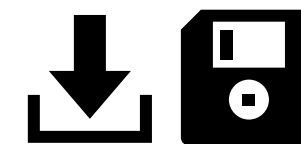
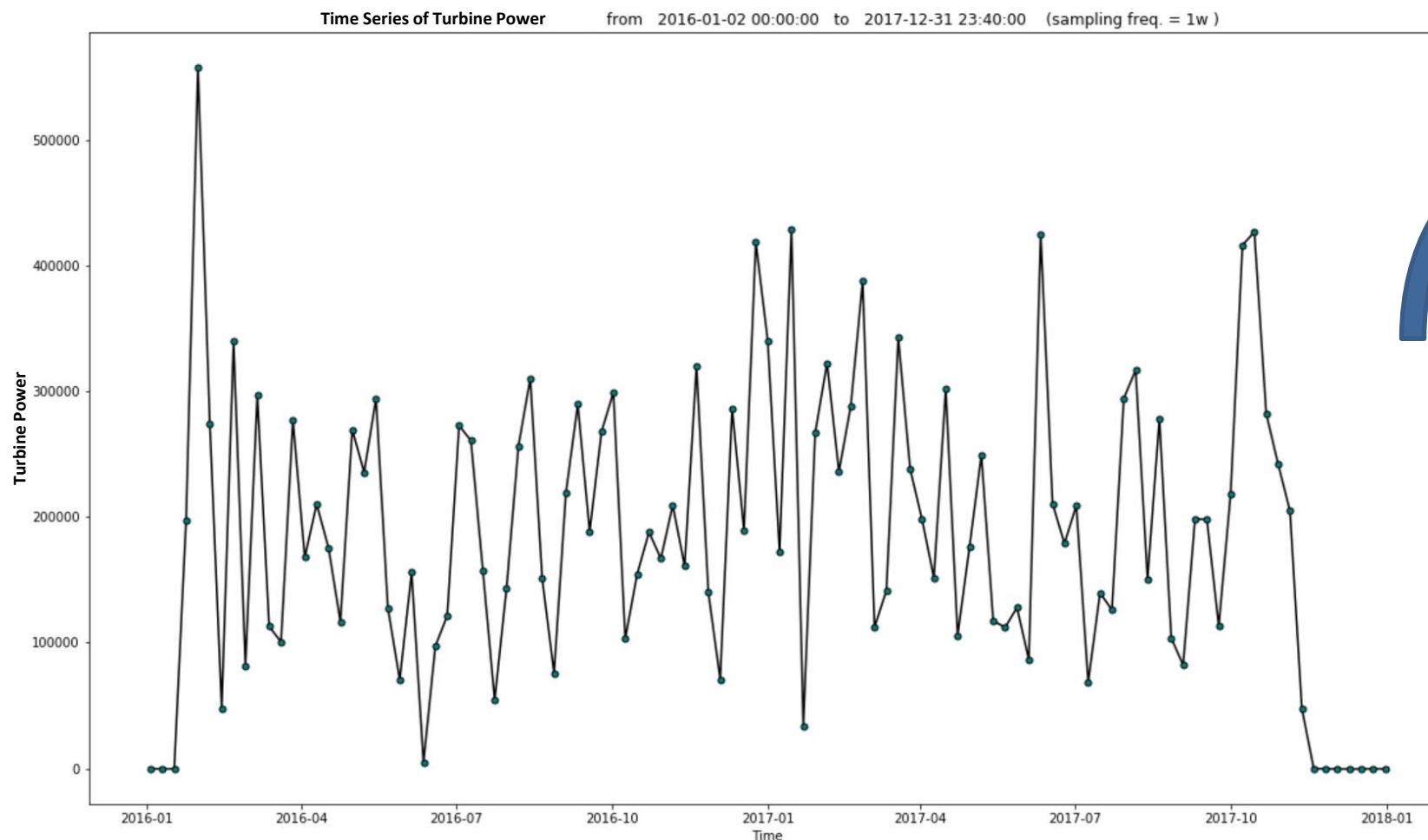
Time Series

Turbine power, default freq. (10 min)



Time Series

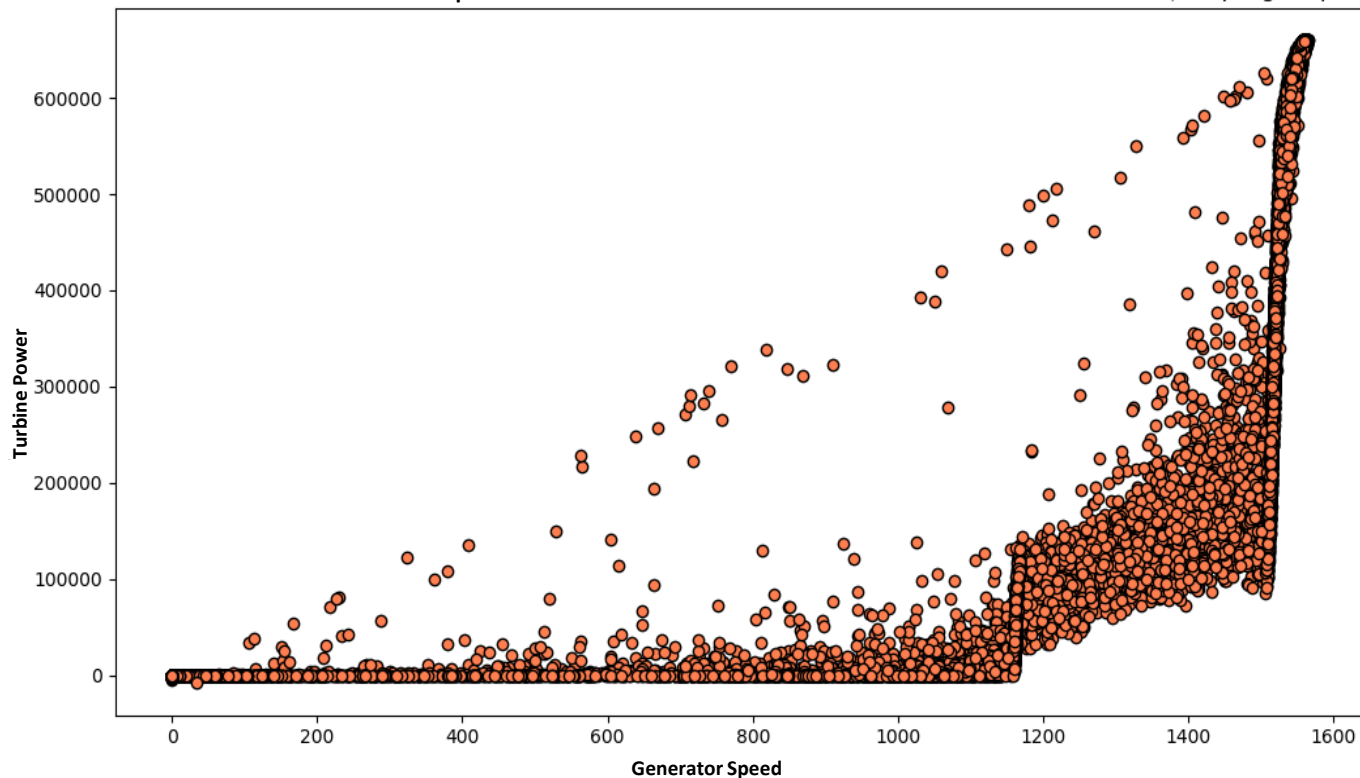
Turbine power, resampled (1 week)



Export graph &
data file

Scatter Plot

Turbine Power vs Generator Speed from 2016-01-02 00:00:00 to 2017-12-31 23:40:00 (sampling freq. = 45 min)



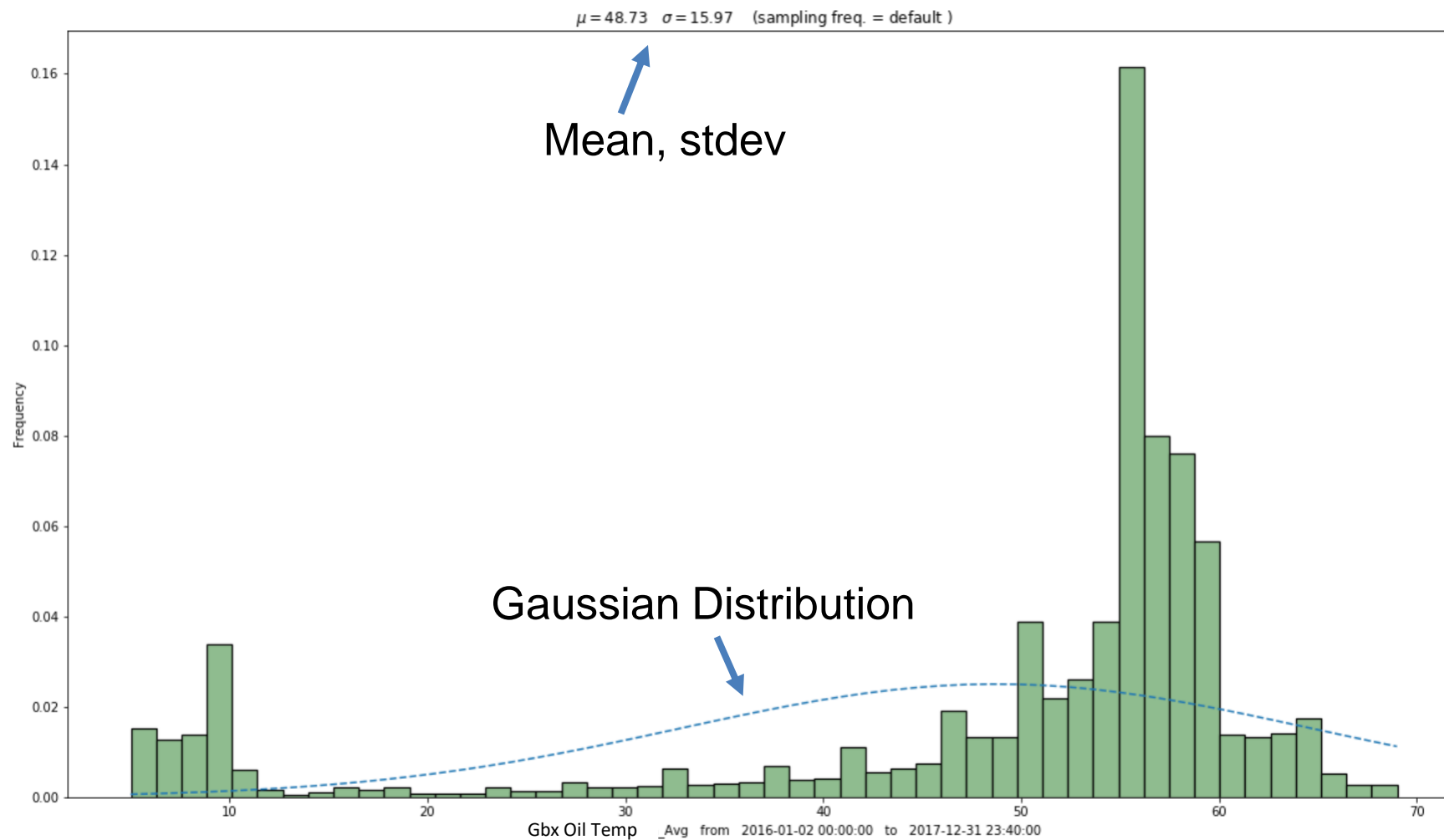
Select one variable from each row

PLOT

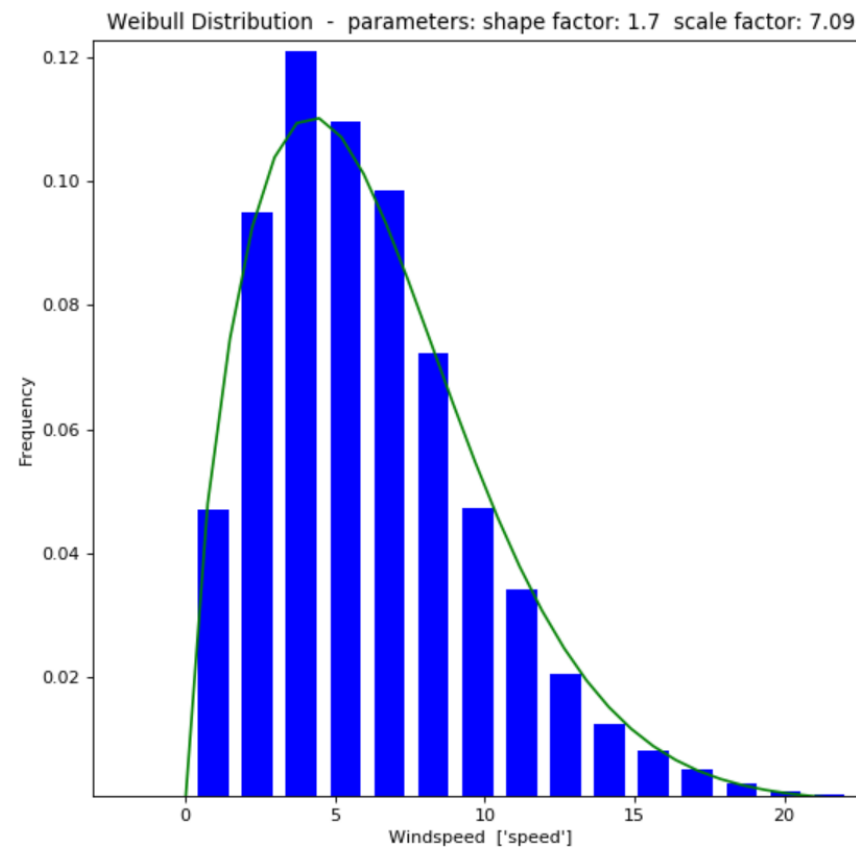
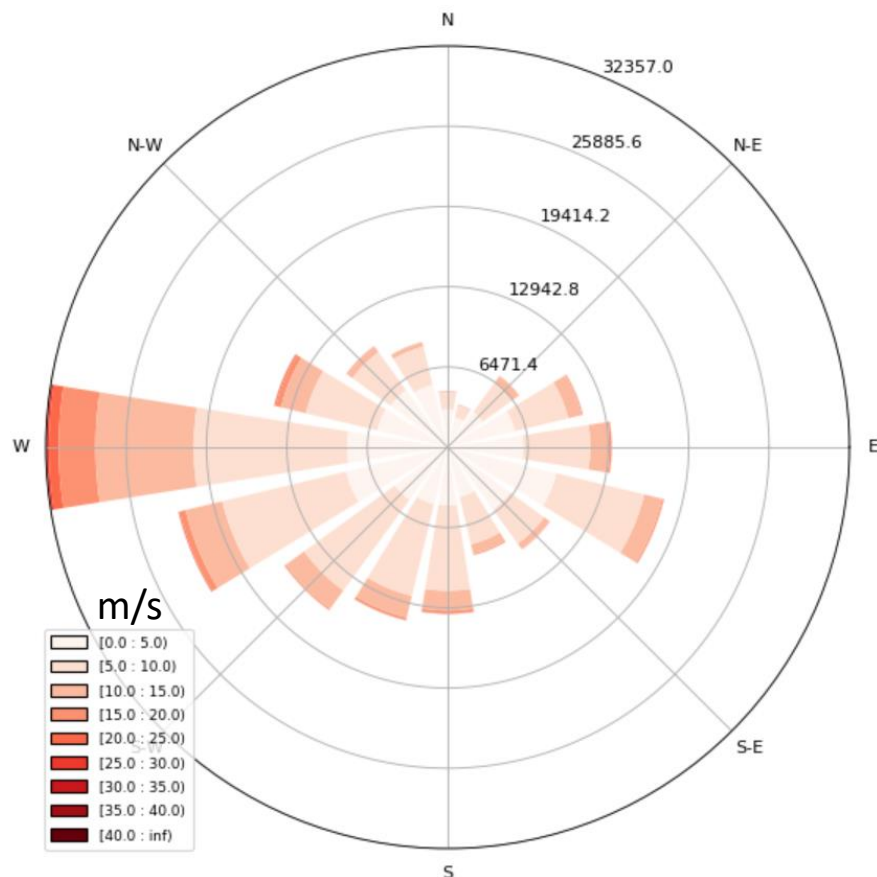
x-axis y-axis

WTUR.W2_10m_Avg	WTUR.W2_10m_Avg
WTUR.W_10m_Std	WTUR.W_10m_Std
WTUR.W_10m_Min	WTUR.W_10m_Min
WTUR.W_10m_Max	WTUR.W_10m_Max
WTUR.W_10m_Avg	WTUR.W_10m_Avg
WGEN.GnTmpSta_10m_Avg	WGEN.GnTmpSta_10m_Avg
WGEN.OpTmRs1_10m_Sum	WGEN.OpTmRs1_10m_Sum
WGEN.OpTmRs2_10m_Sum	WGEN.OpTmRs2_10m_Sum
WGEN.SlpRngTmp_10m_Avg	WGEN.SlpRngTmp_10m_Avg
WGEN.Spd_10m_Avg	WGEN.Spd_10m_Avg
WGEN.Snd_10m_Max	WGEN.Snd_10m_Max

Histogram



Wind Rose & Weibull Distribution



Get involved



Diversity and Inclusion Report

Wind and Marine Energy Systems CDT
University of Strathclyde
Glasgow

November 2018

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(Contact: edward.hart@strath.ac.uk)

*All authors are CDT students, Edward has recently completed his PhD and is now a research associate with the university.

“Diversity and Inclusion is not about charitable hand-outs and queue skipping, as is sometimes thought to be the case. Rather, it is about harnessing the skills, insights and ideas of people who are generally overlooked. It is about reassessing what we mean by ‘good’, removing barriers and moving away from practises which allow unconscious bias to obscure decision making. It is about having the best people and building the best teams and, crucially, about accepting the fact that current practise falls short on both counts.”

Thank you for the attention, any questions?

