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How to use the XJTLU LaTeX template to write your academic article (Beta)

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Abstract

Write your abstract here.

Key words: key words.

Contents

Section 1

chapter 1

1.1 Section 1.1

How to add a citation or reference [1]. Please open the file reference.bib to check how to add a citation. Google scholar and IEEE Xplore provide the right format of citation. You can copy Bibtex format to reference.bib and use cite command in tex file to cite the reference.

In Section 2.1, it will introduce how to add a figure.

Section 2

chapter 2

2.1 Section 2.1

Two way can be used to add a figure.

Method 1: In Fig 2.1.

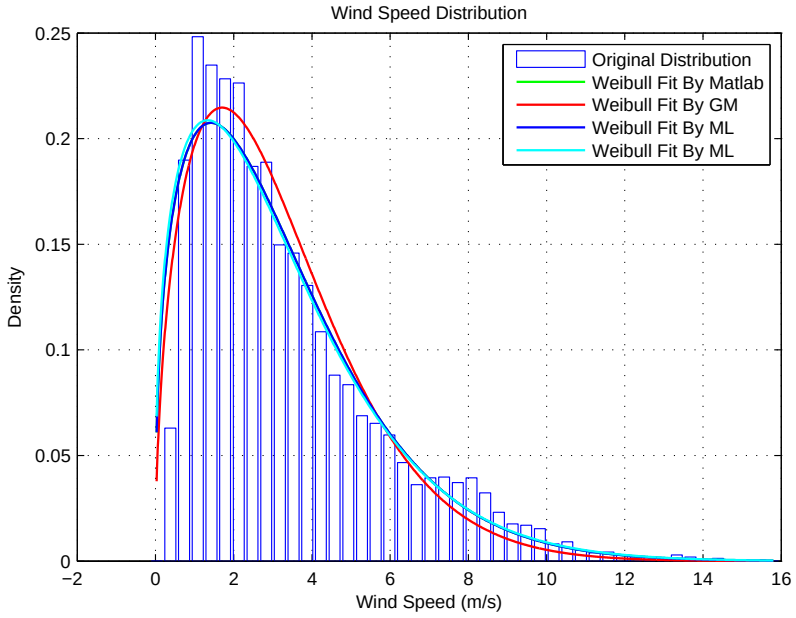

Figure 2.1: This is an example by using method 1

2.2 Section 2.2

2.2.1 Subsection 2.2.1

Method 2: Use the XJTLU efigure command in Fig 2.2

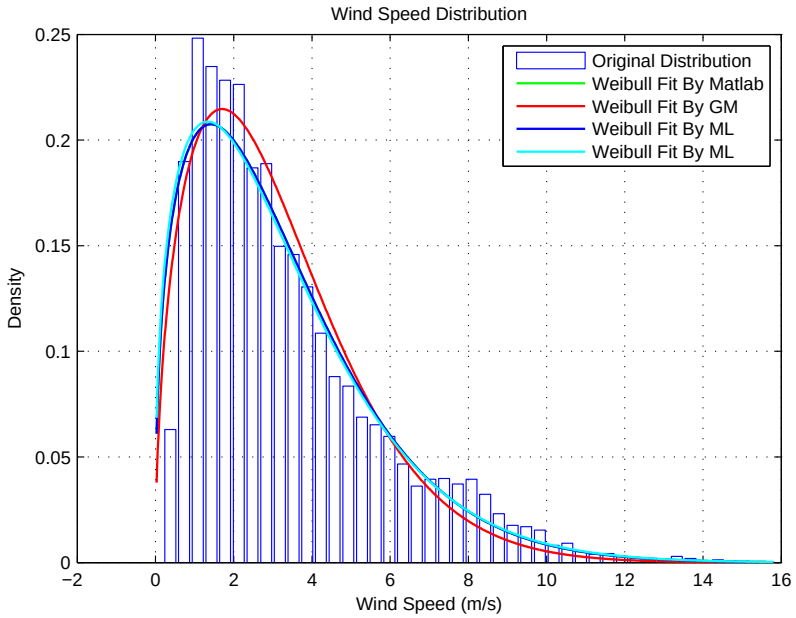

Figure 2.2: This is an example by using method 2

Section 3

chapter 3

You can compile your tex file by Ctrl + Shift + L and compile the citation file by Ctrl + Shift + B. After some times compile, you can use the menu Tex - PDF - dvi2pdf to get the pdf file.

The official document will be published later.

Appendix A

Matlab Code

```
clc
clear
dat = load('data\wind_speed.txt');
dmax = max(dat);
dmin = min(dat);
v = dmin : 0.01 : dmax;
%% Distribution of original data
dat_sort = sort(dat);
Possi = 1:length(dat_sort);
Possi = Possi / length(dat_sort);
tic
for j = 1:length(v)
    ori_F(j) = length(find(dat <= v(j))) / length(dat);
end
toc
% ori_F_L is the original CDF low density
ori_F_L = ori_F(1:35:length(ori_F));
v_L = v(1:35:length(v));

for i = 2:length(v_L)
    ori_f(i) = (ori_F_L(i) - ori_F_L(i-1)) ...
                / (v_L(i) - v_L(i-1));
end

figure

bar (v_L,ori_f,'FaceColor','none','EdgeColor','b');

%% Matlab Weibull Toolbox
tic
[p] = wblfit(dat);

MW_c = p(1,1);
MW_k = p(1,2);
MW_f = wblpdf(v,MW_c,MW_k);
MW_F = wblcdf(v,MW_c,MW_k);
toc
hold on;
plot (v,MW_f,'g','LineWidth',1);
grid on
% figure
% plot (v,MW_F,'LineWidth',2);
%% Graphic method
tic
logF = log( -log(1 - ori_F));
logV = log(v);

p = polyfit(logV(1:length(logV)-1),logF(1:length(logV)-1),1)

GM_k = p(1)
GM_c = exp(-p(2) / p(1))
GM_f = ((GM_k / GM_c) .* (v / GM_c).^(GM_k - 1)) ...
        .* exp(-(v / GM_c).^GM_k);
toc
    hold on;
plot (v,GM_f,':r','LineWidth',1);

%% Maximum likelihood method

tic
ML_k = 2;
ML_k_T = 0;
while (abs(ML_k - ML_k_T) >0.001)
   ML_k_T = ML_k;
   ML_k = (sum(dat.^ML_k .* log(dat)) / sum(dat.^ML_k) - ...
             sum(log(dat)/length(dat)))^(-1);
end
ML_c = (sum(dat.^ML_k) / length(dat))^(1 / ML_k);

```

```
ML_f = ((ML_k / ML_c) .* (v / ML_c).^(ML_k - 1)) ...
        .* exp(-(v / ML_c).^ML_k);
toc
hold on;
plot (v,ML_f,'-.b','LineWidth',1);


%% Moment method
tic
MM_k = (std(dat) / mean(dat))^(-1.086)
MM_c = mean(dat) / gamma(1 + 1/MM_k)

MM_f = ((MM_k / MM_c) .* (v / MM_c).^(MM_k - 1)) ...
        .* exp(-(v / MM_c).^MM_k);
toc
plot (v,MM_f,'--c','LineWidth',1);

grid on;
xlabel('Wind Speed (m/s)');
ylabel('Density');
title('Wind Speed Distribution');
legend('Original Distribution','Weibull Fit By Matlab', ...
        'Weibull Fit By GM','Weibull Fit By ML', ...
        'Weibull Fit By ML','Location','NorthEast')
```

Reference

[1] Isaac YF Lun and Joseph C Lam, "A study of weibull parameters using long-term wind observations," *Renewable Energy*, vol. 20, no. 2, pp. 145–153, 2000.