（1） /rand_bias0.3：采样率 10M，接收速率 60M，bpsk 分布，偏置电流 0.3A。

1. /norm_LS: 用 LS 算法，求出各个幅度信号的 NMSE。用很多信号来生成 LS

矩阵。

1.1 norm_LS： r = 8, add_zero = 15

```
LS
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
origin rate = 1.000000e+07 , receive rate = 6.000000e+07
H order = 48
Add zero num = 15
```

1.2 norm_LS2： r = 5, add_zero = 15

```
LS
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
origin rate = 1.000000e+07 , receive rate = 6.000000e+07
H order = 30
Add zero num = 15
```

1.3 norm_LS3： r = 8, add_zero = 24

```
LS
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
origin rate = 1.000000e+07 , receive rate = 6.000000e+07
H order = 48
Add zero num = 24
```

1.4 norm_LS4： r = 5, add_zero = 24

```
LS
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
origin rate = 1.000000e+07 , receive rate = 6.000000e+07
H order = 30
Add zero num = 24
```

2. /single_amp: 单一幅度数据作为训练数据，且数据归一化。发送信号是 bpsk 分布的随机信号，采样率为 10M，接收速率 60M，偏置电流 0.3A。

2.1 /Threenonlinear1：r = 8，add_zero = 15

```
Threenonlinear ,
ini learningRate = 1.000000e-02 ,
min batch size = 200 ,
DropPeriod = 12 ,
DropFactor = 0.100000 ,
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
validationFrequency is floor(size(xTrain{1},2)/miniBatchSize
origin rate = 1.000000e+07 , receive rate = 6.000000e+07
H order = 48
Hidden Units = 60
Add zero num = 15
```

2.2 /Threenonlinear2：r = 8，add_zero = 24

```
Threenonlinear ,
ini learningRate = 1.000000e-02 ,
min batch size = 200 ,
DropPeriod = 12 ,
DropFactor = 0.100000 ,
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
validationFrequency is floor(size(xTrain{1},2)/miniBatchSize
origin rate = 1.000000e+07 , receive rate = 6.000000e+07
H order = 48
Hidden Units = 60
Add zero num = 24
```

2.3 /Threenonlinear3：r = 5，add_zero = 15

```
Threenonlinear ,
ini learningRate = 1.000000e-02 ,
min batch size = 200 ,
DropPeriod = 12 ,
DropFactor = 0.100000 ,
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
validationFrequency is floor(size(xTrain{1},2)/miniBatchSize
origin rate = 1.000000e+07 , receive rate = 6.000000e+07
H order = 30
Hidden Units = 60
Add zero num = 15
```

2.4 /Threenonlinear4：r = 5，add_zero = 24

```
Threenonlinear ,
ini learningRate = 1.000000e-02 ,
min batch size = 200 ,
DropPeriod = 12 ,
DropFactor = 0.100000 ,
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
validationFrequency is floor(size(xTrain{1},2)/miniBatchSize
origin rate = 1.000000e+07 , receive rate = 6.000000e+07
H order = 30
Hidden Units = 60
Add zero num = 24
```

3. /mix_amp: 混合幅度数据作为训练数据，且数据归一化。发送信号是 bpsk 分布的随机信号，采样率为 10M，接收速率 60M，偏置电流 0.3A。与之前不同的是，由于此次用的是 bpsk 信号，所以用来训练的数据中高幅度数据会多一些。

3.1 /Threenonlinear1： P = 5，F = 0.1，r=8，add_zero = 15

```
Threenonlinear ,
ini learningRate = 1.000000e-02 ,
min batch size = 400 ,
DropPeriod = 5 ,
DropFactor = 0.100000 ,
amp begin = 1 , amp end = 26 , amp step = 1
data_num = 100
validationFrequency is floor(numel(xTrain)/miniBatchSize/4)
H order = 48
Hidden Units = 60
Add zero num = 15
```

3.2 /Threenonlinear2： P = 6，F = 0.1，r=8，add_zero = 15

```
Threenonlinear ,
ini learningRate = 1.000000e-02 ,
min batch size = 400 ,
DropPeriod = 6 ,
DropFactor = 0.100000 ,
amp begin = 1 , amp end = 26 , amp step = 1
data_num = 100
validationFrequency is floor(numel(xTrain)/miniBatchSize/4)
H order = 48
Hidden Units = 60
Add zero num = 15
```

3.3 /Threenonlinear3： P = 7，F = 0.1，r=8，add_zero = 15

```
Threenonlinear ,
ini learningRate = 1.000000e-02 ,
min batch size = 400 ,
DropPeriod = 7 ,
DropFactor = 0.100000 ,
amp begin = 1 , amp end = 26 , amp step = 1
data_num = 100
validationFrequency is floor(numel(xTrain)/miniBatchSize/4)
H order = 48
Hidden Units = 60
Add zero num = 15
```

3.4 /Threenonlinear4: P = 8 , F = 0.1 , r=8, add_zero = 15

```
Threenonlinear ,
ini learningRate = 1.000000e-02 ,
min batch size = 400 ,
DropPeriod = 8 ,
DropFactor = 0.100000 ,
amp begin = 2 , amp end = 26 , amp step = 1
data_num = 100
validationFrequency is floor(numel(xTrain)/miniBatchSize/4)
H order = 48
Hidden Units = 60
Add zero num = 15
```