

EE257/GP 258 Extra Handout Using Eigen to solve SVD

Prepared by Ann Chen

Here is a simple example:

```
#include <Eigen/LU>
```

```
#include <Eigen/SVD>
```

```
#include <Eigen/Dense>
```

```
#include <iostream>
```

```
using namespace Eigen;
```

```
int main()
```

```
{
```

```
MatrixXd A = MatrixXd::Random(2,3);
```

```
JacobiSVD<MatrixXd> svd(A, ComputeThinU | ComputeThinV);
```

```
std::cout << "A=" << A << std::endl << std::endl;
```

```
std::cout << "U=" << svd.matrixU() << std::endl << std::endl;
```

```
std::cout << "V=" << svd.matrixV() << std::endl << std::endl;
```

```
std::cout << "s=" << svd.singularValues() << std::endl;
```

```
}
```