**Notation**

All vectors will be expressed as column vectors. The typographic convention used for a column vector $\mathbf{x}$ is $\mathbf{\bar{x}}$. Row vectors will be represented by the transpose of a column vector. For example, if we wish to represent the row vector:

$$
\begin{pmatrix}
1 & 2 & 3
\end{pmatrix}
$$

we would first define a column vector:

$$
\mathbf{\bar{x}} =
\begin{pmatrix}
1 \\
2 \\
3
\end{pmatrix}
$$

Then, the row vector would be expressed as:

$$
\mathbf{\bar{x}}^T =
\begin{pmatrix}
1 \\
2 \\
3
\end{pmatrix}^T =
\begin{pmatrix}
1 & 2 & 3
\end{pmatrix}
$$

The MATLAB® command “$\mathbf{x} = [1 \ 2 \ 3]$” generates a row vector. To generate a column vector in MATLAB®, we use the transpose command “;.” So, $\mathbf{\bar{x}}$ of the previous example would be declared in MATLAB® by “$\mathbf{x} = [1 \ 2 \ 3]$.” Note, that the MATLAB® command “;” is really the adjoint (denoted as $\dagger$). The adjoint of a $\mathbf{\bar{x}}$ is defined as the complex conjugate of the transpose of $\mathbf{\bar{x}}$, i.e. $\mathbf{\bar{x}}^\dagger = \mathbf{\bar{x}}^T$. Of course for real vectors, the adjoint and the transpose are the same. Just beware when dealing with complex vectors!