



Laboratory Notebook

BEMOSS and Its Enhanced Applications

Brian Lauer

blauer@mail.bradley.edu

Beginning March 13, 2018

Contents

Friday, March 13, 2018	5
1 Notation	5
Monday, May 06, 2019	7
1 lab1	7

Friday, March 13, 2018

1 Notation

Throughout this document, the vectors (matrices) will be denoted by lowercase (uppercase) bold letters while the lowercase non-bold letters will denote scalar quantities. Sets will be denoted by calligraphic letters. For positive integers $m, n > 0$, \mathbb{R}^n ($\mathbb{R}^{m \times n}$) denotes n -dimensional column vector ($m \times n$ -dimensional matrix) with entries taken from a set of real numbers \mathbb{R} . $(\cdot)^T$ denotes the transposition of quantity (\cdot) . The standard Euclidean norm of the vector $\mathbf{x} \in \mathbb{R}^n$ and the matrix \mathbf{A} are given by $\|\mathbf{x}\| = (\sum_{i=1}^n |x_i|^2)^{1/2}$ and $\|\mathbf{A}\| = \left(\sum_{i=1}^m \sum_{j=1}^n |a_{ij}|^2 \right)^{1/2}$ with x_i, a_{ij} being the entries of \mathbf{x} and \mathbf{A} , respectively. The scalar products of quantities $\mathbf{x}, \mathbf{y} \in \mathbb{R}^n$ and $\mathbf{A}, \mathbf{B} \in \mathbb{R}^{m \times n}$, are given by

$$\mathbf{x}^T \mathbf{y} = \sum_{i=1}^n x_i y_i \text{ and } \mathbf{A} \cdot \mathbf{B} = \text{Tr}(\mathbf{A}^T \mathbf{B}) = \text{Tr}(\mathbf{A} \mathbf{B}^T),$$

respectively, where $\text{Tr}(\cdot)$ is the trace of matrix (\cdot) . Clearly, $\text{Tr}(\mathbf{A}^T \mathbf{A}) = \|\mathbf{A}\|^2$.
Example of citing a paper. "Authors in [1] ..."

Monday, May 06, 2019

1 lab1

I emailed Mr. Mattus asking him whether he made any progress on finding a laptop that can be used to demonstrate the installation of BEMOSS.

Bibliography

- [1] F. Martinelli. A robot localization system combining rssi and phase shift in uhf-rfid signals. *IEEE Transactions on Control Systems Technology*, 23(5):1782–1796, Sept 2015. [5](#)