ERRATA SHEET

J. R. Hampton, "Introduction to MIMO Communications", 2014

1. pp.2: Change Figure 1.1 to the following:



- 2. pp. 25, problem 1.1: Change "What is the coding gain and diversity gain of this system?" to "What is the diversity gain of this system?
- 3. pp. 36, Equation 2.25 (a): Insert minus sign (-) before the expectation operator.
- 4. pp. 40, Problem 2.3 (a): Change " $\rho \triangleq \sigma_s^2/\sigma$; where σ_s^2 denotes the variance of the transmitted signal" to " $\rho \triangleq \frac{\sigma_s^2|h|^2}{\sigma^2}$; where σ_s^2 denotes the variance of the transmitted signal, σ denotes the variance of the receiver noise, and h denotes the sole element of **H** for the SISO case.".
- 5. pp. 41, Reword Problem 2.3 (b) as follows: "Use the result in (a) to derive an expression for the required E_b/N_0 as a function C/W by assuming that the data rate is equal to the theoretical capacity. Note that the required value of E_b/N_0 decreases as C/W decreases. Compute the value of E_b/N_0 in the limit as $C/W \rightarrow 0$. This value is called the Shannon limit. It is the smallest value of E_b/N_0 for which it is possible (in theory) to find a channel coding scheme that results in zero probability of error."
- 6. pp. 50, Equation 3.30: Replace all *i* subscripts with *j* subscripts.
- 7. pp. 96, problem 4.4: Change first sentence to read "Consider a radio in a vehicle traveling at 25 mph that receives a binary modulated signal from a stationary transmitter with a carrier frequency equal to 2 GHz."

- 8. pp. 105, first sentence after Figure 5.2: Change the phrase "which are assumed to have equal magnitudes" to "which are assumed to be real and to have equal magnitudes".
- 9. pp. 117, second line after Equation 6.8: Change "n denotes noise" to "z denotes noise".
- 10. pp. 123, line immediately preceding Equation 6.25: Change "Since $n \sim C\mathcal{N}(0, \sigma_z^2)$)" to " $z \sim C\mathcal{N}(0, \sigma_z^2)$)".
- 11. pp. 145, Example 7.3: Change first sentence of example to read "Compute the coding gain of the Alamouti code at large SNR in Rayleigh fading."
- 12. pp. 145, Equation 7.47: Change the 1/r exponent to $1/N_t$.
- 13. pp. 151, second line after Equation 7.68: Change $\{s_1, s_2, \ldots, s_k\}$ to $\{s_1, s_2, \ldots, s_K\}$
- 14. pps. 152 & 153: Change all occurrences of the lower case variable k to K.
- 15. pp. 153, line 6: Change k^M to M^K
- 16. pp. 153: Replace the table with the following:

\underline{K}	\underline{M}	Non-OSTBCs	<u>OSTBCs</u>
2	2	4	4
2	4	16	8
2	8	64	16
2	16	256	32
3	2	8	6
3	4	64	12
3	8	512	24
3	16	4096	48
4	4	16	8
4	4	256	16
4	8	4096	32
4	16	65,536	64

- 17. pp. 166, line 7 of Section 8.2.2: Replace "V-BLAST" by "H-BLAST".
- 18. pp. 170, first line after Table 8.1: Replace " \tilde{N} " by " \tilde{Z} ".

- 19. pp. 174, immediately following Equation 8.34: Change "Step i" to "Layer i".
- 20. pp. 183, line 10 following Figure 8.6: Change "Since $\tilde{z}_i(k)$ is independent of layer" to "Since the variance of $\tilde{z}_i(k)$ is independent of layer".
- 21. pp. 190, line 3: Change $[N_r \times n_i]$ to $[N_r \times (N_t n_i)]$.
- 22. pp. 191, second line from end of Section 8.4.3.1: Change " k^{M} " to " M^{k} ".
- 23. pp. 192, line 1: Change $H_{C-C_{1,2}}$ to $N(H_{C-C_{1,2}})$.
- 24. pp. 192, last word of line 2: Change "equals" to "greater than or equal to".
- 25. pp. 209, second line after Equation 9.25: Change $\log M$, to $\log_2 M$.