(where $e_1 = [e_{11} e_{12}]T$) Using (6.98) shows that the expression of $z$ can be computed as a function of the state $x$ only (and does not contain the input $u$), namely

$$z = e_{12}(x)L_f r_1 h_1(x) - e_{11}(x)L_f r_2 h_2(x)$$

Hence, by differentiating $z$, we obtain an equation of the form

$$\dot{z} = y_0(x) + y_1(x)u_1 + y_2(x)u_2$$

If the matrix

$$E_2(x) = \begin{bmatrix} e_1^{(x)} & 0 \\ y_1^{(x)} & y_2^{(x)} \end{bmatrix}$$

is invertible, we can regard $y_1$ and $z$ as outputs, $u_1$ and $u_2$ as inputs, and use the controllaw

$$\begin{bmatrix} u_1 \\ u_2 \end{bmatrix} = E_2^{-1} \begin{bmatrix} v_1 - L_f r_1 h_1 \\ v_2 - y_0 \end{bmatrix}$$

to achieve input-output linearization. This leads to

The new inputs $v_1$ and $v_2$ can be easily designed to regulate $y$ and $z$. If the matrix $E_2$ is singular, we can repeat this procedure to create new outputs.

**LIST OF PUBLICATIONS**

**International Journals**

1) M. Jagadeeshkumar, Subhransu Sekhar Dash, Subramani Chinnamuthu, “Sensitive Area Clustering based on Voltage Stability and Contingency Analyses with Impact of Line Stability Indices”, International


International Conference

1) Jagadeesh Kumar M, Dash S.S, Arun Bhaskar M, Subramani C, “non-linear control of UPFC based on feed-backlinearization to enhance transient stability”, presented in International Conference on Swarm, Evolutionary and Memetic Computing (SEMCCO) at SRM University,
Chennai on 18th December-2010 and published in the proceeding pp 54.
