

```

void csrmul_serial(unsigned int *Ap, unsigned int *Aj,
                  float *Av, unsigned int num_rows,
                  float *x, float *y)
{
    for(unsigned int row=0; row<num_rows; ++row)
    {
        unsigned int row_begin = Ap[row];
        unsigned int row_end   = Ap[row+1];

        y[row] = multiply_row(row_end-row_begin, Aj+row_begin,
                              Av+row_begin, x);
    }
}

```

FIGURE C.8.3 Serial code for sparse matrix-vector multiply.