

Re: Solving a large sparse system with a single dense row/column?

Re: Solving a large sparse system with a single dense row/column?

Source: <http://sci.tech-archive.net/Archive/sci.math.num-analysis/2008-05/msg00094.html>

- *From:* "Anony" <no-email@xxxxxxxxxxxxx>
 - *Date:* Fri, 09 May 2008 17:23:27 GMT
-

<goodchild.trevor@xxxxxxxxxx> wrote in message
news:d7dbcccb-8ce8-49e5-a159-c4a7dec6357e@xx

Yes, I should have been more specific: my system has a dense column
and a dense row. I.e., the matrix looks somewhat like this:

```
  /\n  | x x |\n  | x x |\n  | x x |\n  | x x |\n  | x x |\n  | x x |\n  | x x |\n  | x x x x x x |\n  \/\n
```

(though in reality there are more off-diagonal entries and the system
may have blocks that are not symmetric).

Sorry for the confusion,

Based on your description, it seems each X is a [X], a block (or a
submatrix) not a coefficient. If, so, that is not the one I responded
previously. If each entry in your system is a coefficient and your system is
symmetric, variable bandwidth solver can take advantage of the sparsity. If
each entry is a block, that would be a different story. Renumbering deals
with unknowns, not blocks.

Based on your description, it seems your system has a dense block column and
dense block row. Are those offdiagonal blocks dense? If they are sparse
blocks, you can renumber your system to take advantage of sparse solver.