Writing an ISR

Electrical Engineering

What belongs inside an interrupt handler, and what in the main loop.

Short, predictable and free of anything that can block.

Do

- Clear the interrupt flag before returning
- Keep it down to a few microseconds
- Set a flag, do the work in the main loop
- Mark every shared variable volatile
- Hand data over through a queue or buffer

Avoid

- Blocking calls, delays and busy waits
- Printing or any other slow output
- Allocating memory inside the handler
- Long arithmetic the main loop could do
- Assuming nothing else can preempt you

Forgetting to clear the flag re-enters the handler immediately, and the device appears to hang with no obvious cause at all.