Re: Best Book on PID ??

Source: http://sci.tech−archive.net/Archive/sci.electronics.misc/2004−11/0596.html

---

From: John Larkin (*jjlarkin_at_highlandSNIPtechTHISnologyPLEASE.com*)
Date: 11/25/04

Date: Thu, 25 Nov 2004 09:45:23 −0800

On Thu, 25 Nov 2004 12:28:37 −0500, Phil Hobbs
<pcdhSpamMeSenseless@us.ibm.com> wrote:

>I don't disagree that there are lots of similarities, or that there's a lot
>of jargon in control system design that seems intended to preserve job
>security rather than make concepts clear. (There's a lot of that in some
>optics disciplines too−−it isn't just an EE problem. Not to mention all of
>anthropology.) If I'm designing e.g. a laser temperature controller, I use
>Bode plots: one for each of several representative choices of ambient
>temperature and thermal forcing. PLL design with nonlinear tuning is
>similar. Not everything is that simple, however.
>
>Lots of control systems have to work in situations where an ugly settling
>transient will cause destruction−−from burned cookies and broken drive belts
>to loss of life and property. There are very few purely electronic
>situations (i.e. other than driving mechanical devices or large magnets)
>where a poor transient response is that serious.
>
>Ordinarily, with an amplifier driving a speaker, say, you can have a few pops
>and bangs, but no great harm is done, and they can be tuned out during
>debugging. The nonlinearity is of a simple and intuitive sort, and there is
>no complex coupling. There is also usually no external forcing, unlike e.g.
>a motor controller which may have very different loads at different times.
>It isn't possible to test every situation, and it's the ones we haven't
>thought about that will turn round and bite us in the backside. Systems that
>are uncoupled during normal operation, but become coupled due to faults and
>transients, are a common source of this.
>

It's interesting that a lot of real−world control loops leave theory
way behind, except for the fairly boring region of near−steady−state
operation around null. The hairy parts, the transient and exception
conditions, revert to art, instinct, and maybe simulation.

I like systems like that.

John