From: Tony Bathgate <tony.bathgate@usask.ca>
Subject: **Re: CLS description**
Date: August 2, 2011 5:04:53 PM CST
To: Mark Boots <mark.boots@usask.ca>

Well I am a slow writer but based on my experience (and the horrible stories I've heard from other people) I think the absolute most important thing is to be on the same page with your supervisor. Because if your supervisor is a dick he can tell you to rewrite it.

Get a handle on how much he's going to review it and how much feedback he's going to give. If there's even a chance he would make you do massive rewrites then make sure that you come at it with a top down approach. Get him to approve the chapters you'll have, the sections, the subsections, and the subsubsections. If he knows what you've been doing he should know from that table of contents what the entire thesis will be. Once he approves that layout any other issues would just be over grammar or awkward paragraphs and other small potatoes.

I assume you'll use latex: if you put the chapter/section/subsection/subsubsections in first then as you write chapter 2 you can refer to chapter 3 section 1.4 without a hitch. If you have key figures it would probably be best to put them in too before you really start writing for the same reason. Also I always leave the conclusion/introduction/abstract for the end.

I got Doug to read it in stages, like he'd be reading Ch2 while I wrote Ch3, so any changes that affected the rest of the thesis could be incorporated as I went.

Probably none of this is insightful and I'm sorry if this makes it seem like I'm belittling your writing/planning skills. I just hope it goes smoothly for you since a month for writing could be challenging depending on your research and the cooperation of your supervisor.

Anyhow, good luck! Let me know if you have any questions about it. I can even send you a complicated muddled bunch of latex files if you like! ;)

On Tue, Aug 2, 2011 at 4:42 PM, Mark Boots <mark.boots@usask.ca> wrote:

> Sweet, no problem man. There is actually no shortage of Chinese scientists around here, so down the road if you wanted to, you could probably make that happen. (I'll be outta here in September, though. Without connections, you might just get the lame "once around the balcony" public tour.)
>
> Good luck with the random stuff! Got any thesis writing tips? August is my thesis writing month, start to finish, otherwise I'm leaving north america with no M.Sc. Any suggestions, particularly on speed, organization, and getting started, would be gladly accepted ;)
>
> -Mark
>
> On 2 Aug 2011, at 15:57, Tony Bathgate wrote:
>
> > Hi Mark,
> >
> > Thanks! Actually no one else replied which made me suspect that all of you thought, "nope, no such collection of info exists." Its too bad that I couldn't seem to find these pages on my own.
> >
> > Very kind of you to offer the tour. I don't really know how much he'd get out of it without being accompanied by a Chinese scientist to translate everything. Also I won't be able to arrange that anytime soon, got a lot of random stuff going on.
> >
> > I don't do a whole lot of art-ing lately. And my tablet is still working fine anyhoo. But thanks for thinking of me.
> >
> > thanks so much
> > -tony
> >
> > On Tue, Aug 2, 2011 at 3:09 PM, Mark Boots <mark.boots@usask.ca> wrote:
> >
> > > Hey Tony,

I'm just going through the dregs of my inbox to find all the things I forgot to reply to... ;) Sorry! Not sure if anyone got back to you on this.

For a high-level description, this page is a decently accurate introduction: http://www.lightsource.ca/education/whatis.php#how

There's a bunch of technical documents (open to the public, apparently)
here: http://www.lightsource.ca/operations/techdocuments.php I'm not sure how appropriate they are; the ones I skimmed through look more low-level than the general description you were asking for.

> He was asking me a bunch of questions about ... the storage ring I guess, like the duty cycle, voltage levels, and strength of magnetic fields that actually drive the electrons around the ring.

Rather than using pure magnetic fields, the linear accelerator, booster ring, and storage ring all use resonant RF cavities with (microwave) standing waves in them, which the electrons pass through and get boosted by... If you can get the phase and timing just right, this provides a much more efficient way to accelerate particles than using pure magnetic fields. (This is strictly for acceleration/energy-repletion. There's obviously a whole set, or "lattice" of focussing and bending magnets used to keep the beam stable and going around the ring.) There's some pretty cool massive RF amplifiers and waveguides used to create all of this microwave energy.

We're actually in a one-week shutdown right now, and the linac and booster ring are open. (The storage ring hasn't been opened yet, but they might open it up later this week.) If your father-in-law wants to actually see inside, now's the perfect time. (Obviously for radiation reasons, nobody can be down there when the CLS is operating.) I could take you guys for a tour; my CID badge gives me sweet door-opening powers that David and Darren don't have ;) Sometime in the evening any day this week would be best.

Cheers,
-Mark

PS: I'm trying to find a home for all of my gadgets and junk before I head overseas. Are you still doing digital drawings? I have a Wacom Bamboo pen/touch tablet that's basically new, and I was wondering if you had a use for it.

On 20 Jun 2011, at 14:26, Tony Bathgate wrote:

> Hey guys,
>
> This may seem weird but my father in law is a retired engineer/researcher and is really interested in how the CLS works. He was asking me a bunch of questions about ... the storage ring I guess, like the duty cycle, voltage levels, and strength of magnetic fields that actually drive the electrons around the ring.
>
> I was wondering if there is some document that at least gives a higher level explanation of how the light source works that I could give him as a jumping off point. If he needs more detail after that I figure I could drill down to figure stuff out. All I can really find on my own is CERN status reports about the CLS.
>
> Thanks,
> -tony