Interview with Norbert Preining

Paulo Ney de Souza

This interview took place on 7 August 2021, during the TUG 2021 online conference.

Paulo Ney de Souza (PN): Good morning, Norbert. Are you awake, did you take your coffee already?

Norbert Preining (NP): Yes, and actually you see my cup.

PN: Oh, my God. The eternal BachoTEX!

NP: Yes. I still have two cups of those so I'm quite happy.

PN: Good time. How are you? Are you ready for heavier conversation.

NP: I'm completely fine already. I think most others are asleep, right?

PN: Yeah, well the Europeans, probably. I see Jerzy [Ludwichowski] here and I see a few other guys, Herb Schulz, so there are a few Europeans up.[1]

Well, I'm not even going to spend the time introducing Norbert because most of the people here know him way more than I do. And for the ones that don't know him and are seeing him here for the first time, he's a mathematician, a logician specifically, and an accomplished programmer with manifold interests, and I'd like to talk to him about a few things because this guy has many hats, including TEX Live. If there is a manager of TEX Live, he's probably the one.

NP: No, no it's Karl [Berry], not me.

PN: Well, but Karl has so far refused to have an interview...

NP: Yes.

PN: So what I would like to do, Norbert, is start out where that interview that you gave to TUG stopped[2] and...

NP: That's a long time ago!

PN: Yes, yes. And I'd like you to tell us what brought you to do this trip to the Far East. It's a trip that's in the reverse order most scientists, which comes...

NP: There are a lot of scientists in Japan! They get a lot of Nobel prizes, I would say.

PN: From Europe and from the US?

NP: I think it's on the same level.

PN: On the same level? Oh, that's interesting. So what brought you specifically for...

NP: It was back in 2008 or something. I was thinking about leaving academics completely and working full time as a mountain guide because I'm also a professional mountain guide, and at that time, Professor Ono from the JAIST[3] here, close by where I live, invited me to come over and work as associate Professor there, and it was of course tempting.

I mean, in Austria, there was always, I mean, you always have, every two to three years, you have to write project applications to fund your own salary and all this kind of stuff. So that's the reason I thought work as a mountain guide is easier. And then, when the option to go to Japan, well, at least for a few years, it was interesting, yes. And I, of course, I thought a lot. I wasn't that young back then. (I'm much older now.) And I thought about, well, I'll just move into it completely. I have been here before, I mean I've been in 2006 and 7, each one month for research work here, so I knew what to expect. Well, I thought I knew what to expect. That was more or less the way I came here. So it was for work, for university work.

PN: You are on a new job these days, is that correct, or not?

NP: Well, since quite some time, since 2016; in 2016 the JAIST decided, in the spirit of internationalization, to throw out *all* foreigners, besides those in the English department. That was especially very much welcome, because in the very same month my daughter was born, so it was a good coincidence, to go into unemployment in Japan with a newborn

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[1] Editor's note: Herb is actually in the Chicago area, so not all Europeans.

[2] tug.org/interviews/preining.html, 2011.

[3] The Japan Advanced Institute of Science and Technology

child. Yeah. And then after about five to six months I joined the company in Tokyo in the research and development lab. And just this year in February I changed to Fujitsu Research.

PN: Wow! Can you tell us, I mean do you apply logic in there, was it a complete separate part of your life as well, or. . .

NP: In the previous company, it was more or less completely separate. I mean, I did. . . Nowadays, what I do a lot is machine learning, right? Like most people. So there is not much logic there. Now within Fujitsu Research and I'm working on Neuro-symbolic AI, so this is something where my logic background and TCS background is hopefully merged with work in machine learning. So that's it.

PN: So does Fujitsu support basic research or is it. . .

NP: Yes, yes, well. . . basic research; I would say they want, of course, return of investment, right? In some sense. No, they do, really do. They support a lot of research, in a lot of areas, so really also basic research. Of course, you have to always argue. But I know several people doing this. From February, when I joined, to the end of March, Fujitsu Research was a separate company. It was only for research, and it was just merged. It was, everything is rebuilt currently in Fujitsu, so it was merged into the main company directly under the top officials. But yeah, basically it's the same. There is a lot of research going on. Of course, I mean, it's company research. You cannot expect doing whatever completely esoteric things; you have to at least explain why it is useful for Fujitsu, right?

And the stuff I do since 30 years, my research, my personal, I just continue in my private time.

PN: Uh huh, uh huh. Are they still heavy on computing?

NP: Yes.

PN: I remember, you know, when I started my computing life and my first laptop was a Fujitsu laptop; I would only go with Fujitsu. And I'll see them in the market, these days, but. . .

NP: They are still in the market with hardware, but it's, of course, so within Japan, but also in Europe in several places, there are big companies who have only worked with Fujitsu machines. There is a lot of service, especially public service. So from the state, from the government, from local governments where Fujitsu is very strong here. So yes, it's still a big company, I mean worldwide, in America, Europe, so they have parts in Sunnyvale, in Madrid, and in London and a few more places in Asia, I guess.

PN: So let me ask you, let me change directions a little bit, and ask you about something that always intrigued me. You seem to have a lot of interests in open source material.

NP: Yes!

PN: I mean. . .

NP: Not only.

PN: Let's put aside mountaineering, which we can enjoy by going over to your blogs and your website and so forth, and see, you know, pictures of stuff that I would never be able to visit in my own lives, but they're amazing to see, But you seem to have a lot of interest in open source software outside TeX.

NP: Yes. . .

PN: Where does it come from? Is it political? Is it. . .

NP: Good question.

Most of the time, I guess, I come around these projects because I'm not content with the current state, and I want to fix it, and that simply works with open source quite nicely, and it doesn't work well with any other source. So that is most of the time one of the big driving forces of me getting into something.

For example, one of the recent projects is this smart speaker. With FOSSASIA we're developing a privacy-aware smart speaker and personal assistant. That's software that runs on your RaspPi. You can talk to it, you get answers without Google or Amazon registering everything. It's just because I'm so fed up with Google and Amazon because they're so stupid. I have devices in every room, more or less, because my wife likes to talk to them, and my daughter, and get music back.

Most of the time it doesn't work out, so there are things I want to fix, and then open source projects are nice, right?

PN: Aha! So there is a personal need to make something work. I sometimes stop by your blog and your web page, and when I see the description of the projects you're involved with, I get tired only from reading them. So long it is. . .

NP: Yeah, but, for example, the biggest one I recently got involved in is the KDE/Plasma desktop for Debian, because I was so fed up, because in Debian, it was horrible old, it was completely outdated, and nobody did the work, and so I mean it was like two years back, and it wasn't really what it is; well, then I do it myself. Right?

And I did it first all myself, without the team, outside of Debian just for my own. I made all the

packages, 300, 400 packages all for my own, because I wanted to have an up-to-date, recent, properly working system and then other people started to use it, and, well, it took two years and now, well, hopefully it's in much better shape in Debian. So that was a lot of time to adjust, but it's most of the time that I'm just not content with the current state that I start to fix things.

PN: But don't ... tell me one thing. How do you juggle this all? Do you get home and work until midnight?

NP: No, I normally get up at three or four o'clock in the morning.

PN: And how do you find time? How do you, . . . , for example, tell me how many hours you put in on TeX Live, for example, every week.

NP: On TeX Live, not that many any more. It is, I mean, there were huge peaks in 2017, 18, 19,[4] but since then it has steadily decreased like what is necessary. I mean, bug reports are getting less and less, also new feature requests are getting less and less, right? So there is not so much to do any more.

 The daily grind work of updating packages is mostly done by Karl unless Karl is on holiday or somewhere, then I do it. But I mean also this is mostly automated, so since we're doing it, Karl and me automatically, because at the end it's just a lot of repetition. I mean it's just emergency fixing for problems, like when was it recently, two weeks ago, when the GPG key[5] again expired and one part wasn't updated, and so these are the things. I wouldn't say that I put in TeX Live more than three to five hours a week, or if that would be a lot actually, I guess.

PN: So you consider it to be in steady maintenance mode, or no?

NP: Yes, yes, at the moment. I mean there are several things I have started working on, but I never could convince myself to finish, within TeX Live; also because there was never the need for it.

 I mean Karl puts much more work in it, right? I mean the daily update of packages is mostly all due to his work.

PN: Which involves taking the package, installing the package, and...

NP: Yes.

 Well, this is also 90–95% automated, right? I mean, we have written several scripts that automate all these updates and unpacking and repackaging and running LaTeX and everything, so that, at the

end a package for TDS (the TeX directory standard) comes out. But this is like mostly...

 We need to do work for new packages or very special packages, but this has to be done only once for new packages and not permanently. So it works quite nicely at the moment.

PN: We've got a guest.

[There is an interruption here as Norbert's daughter, Haruna, makes an appearance. Her father tries to shoo her away, not entirely successfully, but she finally gives up.]

PN: That was beautiful. Beautiful that that no one can integrate this way.

NP: It sounds beautiful but, in reality, sometimes I wish I could go to an office because concentrated work is harder when you... That that's the reason, what I told you before, I get up at three or four o'clock in the morning, because then I have at least three to four hours of peaceful work.

PN: Yeah, but how long do you take to commute to work and commute back?

NP: I don't commute. Since 2016 I'm fully remote.

PN: Fully remote.

NP: Fully since 2016, so long before corona. Because my previous company was in Tokyo and I'm not in Tokyo, so I (and I don't want to move to Tokyo; I'm actually on the other side of the island), so with the previous company, I visited the company like once, twice a month for Tokyo. And now at Fujitsu I would normally also go once, twice to Tokyo, but I mean with corona, everything is shut down; no traveling.

PN: So it's unimaginable that the Tokyo subways and metro are, you know, are not being used at the moment but...

NP: They are used, of course. They are completely filled, of course. I mean completely full? — I don't know, but I guess that many people still have to go to work.

PN: Cool.

 So, since our conversation is handed over to programming and TeX Live and so forth, can you know what can be expected on the year?

NP: I think nothing considerable changes. Nothing changes in the next years. I think the biggest change over there next — at some point in the future we'll be looking at 64-bit Windows, I guess. Something I tried to support, but I gave up because it's too much.

 So that would be something that lots of people are asking for. Within the Japanese community,

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 [4] 2007–2009; spoken incorrectly in the interview
 [5] The GPG key used to sign TeX Live packages.

actually, this is quite close due to the large fonts and often 32-bit Windows just runs out of memory. So there seems to be problem with huge CID-keyed fonts. Especially if you load several, I mean, of them for different stuff, so there is some need for this that might be something that comes in the future.

We don't know actually how. Maybe we just drop 32-bit and only work with 64-bit, but I mean there are a lot of people who still say that they want to keep 32-bit. And the program is really... I mean that is hard work. I mean the most painful part of the code are the special cases for Windows, and duplicating and making this work for 32- and 64-bit platform for Windows is a challenge. I've started three or four times; I have still the branches in my git repository somewhere. But then they [were] never realized, also because I have, well, recent with Fujitsu, I started to have to use Windows nowadays, but I myself hardly don't use Windows. It's hard for me also to test things.

PN: Mm hmm.

It's just we got into the subject, so let me ask you another question. The Gartner Group estimate that more than 80, more than 80% of the world shipping of operating systems, right now, do not run TeX, the situation which is...

NP: Gartner say this? Really! Wow.

NP: Yeah.

PN: This is like, you know, Fifteen years ago. Fifteen years ago we didn't have Android, we didn't have iOS...

NP: But we have TeX running on Android, that's not the problem, right?

PN: Well, we do have some sort of TeX running on Android.

NP: It's not integrated at the level you would like to see it, I agree. But...

PN: It's not that bad. That's what I want to see.

NP: But actually, there is some Chinese have, don't they have some application, something where they... I'm not sure. Well, the problem is with the security obligation of this. I mean it's actually getting more and more complicated, even on Macs: I remember one and a half years ago there was a discussion whether we can actually install TeX Live going further, because Apple removes interpreters, locks down installation. It's getting harder and harder. I mean if people want to use hampered and devices controlled by big companies, then please go ahead, yes. But it's getting more and more difficult for volunteers to support this.

PN: But do you see a time that it's going to be difficult to acquire a machine that that you'll be able to install, you know, an operating system on it and be running when all...

NP: No, you can always install Linux, right?

PN: Well, as I said, you know that the situation fifteen years ago was such that every single operating system that was shipped in 2000, fifteen years ago every single operating system shipped ran TeX. With iOS and Android, the situation is such that they kind of run TeX, but it's not the kind of TeX you want to use, so it's a, if you're really with a tablet, you know, on the couch, and you want to do some TeXing...

NP: Yes, I completely agree. I mean, but that I think in principle is a question of developing a nice user interface. I think with Android, at least, I mean at least me... I'm not sure. I use Android, but I'm just a dummy user. But I guess, as a rooted device, you can do everything. The question is how to interface with that, right? You want an application where you can just type. You can run, I mean you want an Emacs, right?

Not the whole Emacs, but what you want is to edit and kick off compilation from the edit screen and automatically switch to a PDF viewer. Yes, that would be nice, right? But that is something an Android application developer has to provide, right? This is not something...

I think the actual code, the binaries or something, you can compile on Android. I think there are several projects compiling for Android. And iOS should be also, I mean, we have binaries for MacOS, and so I, well, it's not easy compiling for a different hardware architecture. It's not that trivial, especially with iOS — with Apple just throwing blocks at developers — but in principle this should be possible, right? It's just who is doing it, right?

I mean the lack of expertise, right? We had some people who could do this, but I mean they also have their private life, or whatever. As long as nobody steps forward and say, "Okay, I know Android. I can develop on Android, and I'm also pro-open source. I'm writing an Android application that I don't sell and/or just offer", then it won't happen.

Always like this, you have to have the interest and fix it yourself, right?

PN: Right.

NP: Well, I say this.

PN: Yes, I guess so, so yeah. Somebody said that if you want something done, you should do it yourself. I don't know exactly who said it.

NP: And since my phone is small, I won't run Android on it, because typing on this is anyway a pain, with my clumsy fingers.

PN: So, so let me, in talking about that, which puts me on a parallel track...

Is there anything that you think that should be done with the TeX Live on the distribution streams? You know if you run, you know, TeX Live from Ubuntu, you'll get something which is like, you know, five years old, and to get TeX Live from Solaris is 12 years old.

NP: Okay, yeah, there are a few things that would be great. So the biggest problem at the moment is that packagers are stupid. Unfortunately, we have to say. There are too many, and I'm allowed to say this because I'm also a packager, right?

PN: Okay.

NP: And I answer all your questions on the TeX Live distro list about the packages, so... The problem is, most of the packagers are not really *users* of, I've seen this often, not users of TeX Live, they just want to package it without really understanding how stuff works. I agree, this is complicated then, and leads to disasters. We have seen too many times.

I also agree that the installation of TeX Live is not trivial. It could be. So why? Because everyone is expecting `configure; make; make install; ready`. Right? That is, a lot of people are expecting, and whatever, I mean it could be `cmake` and then `make` or whatever, so there are a lot of options.

So there we are far away from that; that is something. I mean the compilation — the binaries — they can be made like this, but then, a lot of handwork — I mean, not a lot of handwork — but a lot of stuff — I mean you have to merge the main tree with the built binaries, and you have to link some binaries, so it's not completely trivial. That would be something that would help, and that has been requested a few times that would help packagers and distributors to be more up to date, easier to include. Of course, there was a proposal from some in the group to switch to a different build system like whatever `ninja` or `cmake`, which is a nice idea, but nobody has ever come up with an actual replacement of the current system, so...

It's also a problem that the build system was written by Peter [Breitenlohner], who unfortunately passed away, so we have a serious lack of... Because none of us, I mean I can do autoconf, and Karl, of course, is an autoconf guru, but none of us... I mean this build system is quite involved.

So yes, there are some things for distributors that can be improved, I agree. There is, if I would

have time, energy and interest. But for Debian I know how to package it myself, right? And, and for the others, I mean, I cannot care for others, they have to learn. It would be nice if you provide an easier way like `configure; make; make install` and everything works; that would be nice. The problem is often with the splitting of — because it's so big, right? Because we are now at seven gigabytes, and most distributions split it at whatever borders seem right. And the problem is, then, if you split it, you have to take care for whether formats and font map files are properly installed or not, or activated, and if they are activated but not available then you'll get errors and these are this stuff. I actually talked about this, I don't know, during FOSDEM or something, how to package it.

Yes, I agree that there are things; the problem is that the TeX system as a whole is, I mean not the whole packaging, the whole way how things work, is quite old. I mean this `fmtutil.cnf` and `updmap.cfg`. Over the last years, now last five years, I've worked that we can use multiple of them (the configuration files), which makes it already much easier for distributions to ship file and users to add additional fonts and this kind of stuff. It still isn't perfect and it doesn't work out for all kinds of settings. So yeah, there are things to do to make it easier for distributors.

But, for example, if you say Ubuntu, Ubuntu is not that far behind. The problem is with the release schedule of Ubuntu and TeX Live; also the release schedule of Ubuntu, Debian and TeX Live doesn't line up and it means they're always at least one year behind.

PN: Yeah.

NP: But the one year behind, it's often only the binaries and what they say, right? In Debian, for example, we did the last checkout from the CTAN `tlnet` in I think December, and that it was going into Bullseye[6] so the status of December 2020 is going into the next release; that was more or less the last cutoff date before the freeze.

Right. So it's not that old of course, well then, there are two years where this distribution is frozen more or less, and then you cannot update it besides critical. But on the other hand, now be honest, most people only have "updatitis", right? They want to get updates every day; it's not that they need it. I mean 90, I guess 99% of the TeX documents run even on a five-year-old TeX Live installation I guess.

PN: That's correct.

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[6] The code name for the Debian 11.0 release, made on August 14, 2021.

NP: So it's just "Why do I have TeX Live 2019 in Ubuntu? No, it's so old!" And they want something new, not that it's really needed for them, right? But okay.

PN: Well, I'll tell you something in this interview; it's not me interviewing myself, but I'll tell you something, an area that does require update of all the binaries. We were working with submissions by people that are submitting to a proceedings of a conference and working on continuous submissions, so that they deposit their files on DropBox and they write their books and write their papers on DropBox or on Overleaf, and on Overleaf it is not a problem; they write it completely within Overleaf and we use the Overleaf environment. But for people who prefer to use their own TeX on their own boxes using DropBox, for example, I mean the very big problem, the initial problem, we tell them, you have to update `biblatex` to the latest `biblatex`, otherwise...

NP: Well that's true. You're completely right, of course, there are some areas — `biblatex/biber` is one — where you want newer versions. I agree completely, right? But honestly, I write also a lot of TeX code, but I have still haven't used `biblatex` for any of my documents right.

PN: Oh, you *should*!

NP: Yes, but I have already all stuff in a BibTeX `.bib` file and I'm just too lazy to start using it, because it works any way so...

PN: Alright, this was so nice. Tell me, when we are going to see you again in person? At BachoTeX?

NP: At BachoTeX, well, that would be nice, but BachoTeX is always when — I told you before — when there is one of the three holidays in Japan this is this Golden Week, which means that it's one of the time when I can make holidays with the family and...

PN: So this little girl can run everywhere.

NP: I have, I would have to convince my wife that she wants to go once more to BachoTeX. She was there once, right. But I mean for her there is not so much sightseeing there right around BachoTeX. And then there are a lot of freaks.

PN: That's right. I mean with bringing a companion to BachoTeX involves leaving them at Warsaw for a little while so that they can have some fun in Warsaw.

NP: Yes, yes.

PN: And then, when they... Well, I miss seeing you in person.

NP: I miss this nice traveling,

PN: And hope to see you again soon.

NP: Yeah. Well, I don't know when the next conference is. I hope the next TUG will be in person; that would be the biggest chance, right?

PN: Well, yeah, ConTeXt is planning a conference for next month, in person in Belgium.

NP: Yeah. No way. [Shakes head.]

PN: I know.

NP: I hope that I can go in December to Europe that would be my dream, but yeah.

The problem is, I mean, with Japan is quite strict with quarantine, when you return from abroad, so that's...

So, for example, you're not allowed, from the airport, you're not allowed to take public transport home, and that means I have to drive a few hundred kilometers across the whole island to the airport, leave my car there, and drive home myself. And then I have to stay at home, for I think ten days or two weeks without leaving. It's already better now because before you had to stay in a government-decided hotel without leaving the room for ten days.

PN: Shee!

NP: Yes, yes. Now imagine being with a five-year-old daughter locked in a room. That would be quite funny.

PN: Well, but the conditions in Japan are extreme. You know the island is small, the population is huge, cities like Tokyo are immense and humongous, and it does need some, you know, pretty tight controls. Otherwise, you know, things will, I mean you see what happens in Brazil and what happened in India, when you don't control.

NP: Yeah, yeah. Now let's hope, in December, I hope you can go to Europe and then BachoTeX would be really nice, I mean, yes, I... [Holds up BachoTeX mug.] My morning coffee is most of the time in this cup.

PN: All right, hope to see you there.

Thank you, I enjoyed the conversation a lot and we're going to continue this at some time.

NP: Yes, sure enough. Also on the social platform, which we are using anytime.

PN: Yes, yes, yes.

NP: Okay.

PN: Thank you, thank you very much.

NP: Thanks for your time. Bye.

PN: Bye.