
Interview with Boris Veytsman

Paulo Ney de Souza

This interview took place on 23 July 2022, during the TUG 2022 online conference. Boris Veytsman has been a member of the TUG board since 2010, and President since 2017.



Paulo Ney de Souza (PN): Let me start with something very small. How do you pronounce your name? Veytsman [pronounced like “day”] or Veytsman [pronounced like “night”]?

Boris Veytsman (BV): “Vaytsman”. The German translation is “Weitzman”, which would be pronounced like “night”, but since I’m not German . . .

PN: That’s interesting, it took me too long to find out.

Can you tell me how you had your first contact with computing? Can you remember it?

BV: I was born in what was then the Soviet Union, which was several decades behind the United States in computers at that time. So I first read about computers when I was, I think in 7th grade, or something like this. I really loved the idea. But for the first year or so it was mostly pen-based computing. I wrote down programs, I think in Pascal. Then I played computer. I computed it with a pen.

Then when I was at 8th grade, I won in the Programming Olympiad and I was invited to the so-called Summer School of Young Programmers in Novosibirsk, in the Siberian Department of Academy of Science. They had really great computers and they had the School for Young Programmers, which was the brainchild of Academician Yershov, who was a great authority in teaching programming. So there it was 1980 exactly. I remember the date because it was Olympiad days and when a lot of people were watching sports, I was watching BESM-6 (БЭСМ-6), the great Soviet computer.

This was a time when computers would take several rooms and they had a lot of terminals and teletypes. I don’t know, have you seen teletypes? This was an overgrown typing machine where you type something, then the computer would type to you, and you basically talk on a big roll of paper. And the thing about this was that they didn’t have enough terminals, they didn’t have enough teletypes. And so they had a very strict rule. There was a number of levels. School students (I was in 8th grade) were on the lower level. Then there were undergrads, then graduate students, and so on and so on, up to the head of the institute. And the idea was that if you are working on a terminal or teletype and somebody from the higher rank would come and there were no free spaces, then somebody from the lower rank should stop what they were doing, save their work, and release the terminal for somebody at the higher end. And you can understand that since I was a school student, I was the lowest rank at all. So I was bumped many times and I was okay. I think, when I grow up I will have a teletype at my home and nobody will bump me from this teletype. And now basically what happens is now I have this phone which I can connect to any computer in the world. It by itself has probably more computing power than back in my childhood.

So basically when I was a kid, when I get this teletype in my room, I would be absolutely happy and I would not want anything else. Now I have so many terminals around me, sometimes I think I’m happy as much as I would be when I was eighth grade.

PN: I can give you a word of consolation, because I can relate very well to your story, because I was introduced to computing inside the military. So there they would just show you their rank, and you had to leave. It was only in Berkeley that I was able to have access to terminals on a standard basis. So I can relate to that story very well.

We got across this issue, this next issue, several times in this conversation, and crossing from Odesa¹ to Novosibirsk was no easy task. You would get invited normally if you just won the Olympics. It’s a long way. It’s a very long way.

BV: Yes, it’s a very long way. And 1980, this was the year of Moscow Olympiad. And so what happened was that you could not buy any plane tickets because all aircraft were taken to serve the Olympiad, and you could not buy any railway tickets except the

¹ Editor’s note: Since the Russian invasion of Ukraine, many people use the Ukrainian spelling “Odesa” instead of the Russian spelling “Odessa”; we follow suit here.

most uncomfortable. I think it was three days travel in probably the worst possible railway car you can imagine. But I was much younger, and that was fine.

PN: Did you end up meeting other kids from the Olympics there?

BV: The kids in the Programmer Olympics, in which most of my school participated, were interested in general because it was exactly the days of the Olympic Games, and lots of people were watching. But somehow, for those of us programming, especially for those who saw computers for the first time in their life, we would rather be behind the terminals than behind the TVs.

PN: This was most like a summer school?

BV: It was a summer school. It was a very interesting idea by Novosibirsk people. They started to do an experiment. What is the optimal age to teach kids computing? And by computing, I don't mean *using* computing, no, but active computing, when you teach them programming. They have very interesting ideas about special computer languages for the young kids, and so on. And they had a lot of school students.

If I'm not mistaken, the big conclusion of the research was that the optimal age to teach kids coding is fourth grade. Because if you tried before, they don't have yet enough skills and not yet enough attention to start coding computers. And after this, it's like language. It goes downhill after fourth grade. So from their point of view, I started to code actively at 7th or 8th grade. From their point of view, I was probably too old to become a good programmer.

PN: Well, I'll keep your number fourth grade in mind, because I just became a grandparent.

How and when were you first introduced to \TeX and friends?

BV: I'm a physicist by training. So one of the things that physicists do, they write a lot of math, text and so on. So when I was first working, it was the Soviet Union, and then it became Ukraine in 1990s.

In the 1990s we had computers, and we had a very interesting scientific word processor, which was called ChiWriter. Probably some old hands like you and me remember this thing. So I wrote my first paper in ChiWriter. I remember that in many cases it didn't have enough fonts so it had a font editor—you would make your own mathematical font and your own mathematical symbols.

Then when I got a postdoc position in the United States, I wrote, I think, a paper or two in Microsoft Word which was not very pleasant, mostly because

it had a lot of equations. And then a friend of mine who was a young professor at the same department said, you know, there is this strange thing called \TeX and it's much easier to write math in it. It was something like 1994, and there was this program Oz \TeX for Macintosh which had really ugly rendering of text and math on the screen. It used DVI files and the DVI viewer was really bad so the only way to see how beautiful is your text was to send it to the printer. The preview was bad but I started to play with this and I thought, well, it's programming. I know how to program and now I see my text as a program and I can just write down comments how my text should look, and the concept was so attractive for me. I started to work on this.

PN: So you were already an experienced programmer by the time you met \TeX ?

BV: I wasn't a programmer. For a couple of years of my life I was what was called a scientific programmer, and after these two years I understood that I really love programming as a hobby, but working eight hours a day programming is probably not for me, so I'm not a programmer. I really love programming if I'm not made to do it from the morning to the evening; let's say that I'm an amateur programmer.

PN: I have to ask because you are responsible for a great number of CTAN packages and related work, and a lot of them in support of publishing.

BV: Yes.

PN: How did this relationship grow up? There is a huge lot of CTAN packages that have no relationship to publishing, as you know, like \TeX by itself, but with your packages you see a vein of publisher support.² How did this happen? Is it because of your own interest or ...

BV: I don't know. I think sometime in the beginning of 2000 I started to know \TeX was a hobby for me. I wrote a couple of packages and then I saw this, then somewhere I saw a possibility to publish an ad for \TeX consulting in *TUGboat*. Well, it's a nice hobby; maybe they can pay me for this hobby. And I published an ad, and somebody called me and said, we need this sort of style. Why not. And somehow it went from there, and I guess most of it was ads in *TUGboat*. There was word of mouth, and, you know, as I said, programming and \TeX programming as a hobby is something that you do, I don't know, on the weekends and evenings. It's probably one of the most fascinating things you can do.

² <https://ctan.org/author/veytsman>

PN: You mentioned your original training as a physicist . . . It looks like that you always wanted to have a foot inside industry and a foot inside academia.

BV: The thing is, as one of my mentors said in a similar situation, I have a rather short attention span. So there are a lot of people, and I deeply respect the people who can do the same thing for years, for decades, and they just do and do and do, and for me it was always, okay, I understand how to do it, I probably do it well, what else can I do with my life? So I moved and moved. I have to say that in my life, I did all the things from designing vacuum cleaners to proving theorems and doing a lot and a lot of things in between.

So I wouldn't say that I want to be both in academia and industry. I would rather say that I want to be in as many places as possible. Yeah, of course it has its own drawbacks, because if you do something from year to year you probably can get a lot of interesting things and a lot of success. But unfortunately after several years I usually become bored with what I'm doing and try to change it.

PN: I mean for somebody that wanted to have their feet in several different places you must be quite happy right now, having worked for George Mason for so long now, inside CZI [Chan Zuckerberg Initiative], and also president of TUG, with probably one of the longest tenures I have seen.

BV: I'm really surprised that it was long. I need to think about.

PN: What can you share with us about the work inside CZI? Is it gratifying?

BV: I joined CZI at the point when I decided that my main job was becoming boring. At the time I was working for, it was ITT, it's now L3Harris, I think, and it was a very interesting job because we created and maintained what's called ADS-B, basically one of the primary systems for air traffic safety. So I loved to say for many years that if you fly over the United States and don't collide with anybody, then I probably have some . . . I certainly would not say I am completely responsible for your flights not having collisions, but perhaps you may want to thank me in part. But at this point, instead of building the system, we started to maintain the system and it's much less interesting, it's much more routine. So I said let's change everything I did and I moved to Chan Zuckerberg Initiative which had a very interesting idea to completely cure, manage, or prevent all diseases before the end of the century.

As one of my hobbies, I did some biomedical research for many years. I said okay, let's try to do

this and I started to work. I had been working there for five years (another long stretch). My primary work was in what is called science of science. The idea was to try to understand how people in biomedical fields read literature, and how can we improve the reading literature understanding, and so on.

I worked in this area, then Covid struck and people did not know what to do. And I somehow got recruited in the Covid effort in CZI and our sister organization, Chan Zuckerberg Biohub, and we started to think about mathematical modeling for Covid, and I recalled my physicist training and started to write models. We published several papers, including papers in journals like *Phys. Rev.*, *Phys. Biology*, *Scientific Reports*, . . . Basically, it became very fascinating. So right now I've somehow drifted back into physics, biophysics and so on.

By the way, it's one of the secrets if you have a long tenure at the same place. (I have been with Harris for 20 years and have been with CZI five years.) If you have a short attention span and are interested in new things, one of the things you can do, you can reinvent what you are doing even on the same job. And I did this several times at Harris. I'm trying to do this at CZI and basically even if you stay, it's better to think that you are changed.

PN: Let's change then to one other job, which is president of TUG. I remember that you have stated that your goals were to keep TUG intact, relevant in a changing world of that setting when you started. How do you gauge what you have achieved on that goal and what still needs to be done?

BV: Okay, there are two things: you want to keep the lights on, you want to keep going; and you want to go into new directions, and T_EX is a huge world. There's a lot of moving things, that it is difficult to move them all. TUG has lots of people with quite different ideas of what they want. So I think that at the first part of this, keeping the lights on, what we are doing, what we all are doing is good. We have distributions coming out, we have members coming in. I have spent some time trying to stop the bleeding, the constant lowering down the numbers of members. It's very difficult to do.

Going into new directions, it's very difficult to make volunteers to work on the problems unless they think they are most important. So I tried to explain and try to influence. I think we did something in two directions I think are most important. This is accessibility and electronic books. We have now much more progress. I don't think that a lot of this is due to my work. I think that there are much better people and people with much better visions,

and they did this, and many of them have talks in this conference. I hope that some of what I was doing, talking and trying to convince people that this is what should be done, was helpful. I hope that it helps to move a little bit in this direction. But I don't have to say that my contribution was substantial or even significant. I want to hope that I did something to convince people to go there.

We also have a lot of success in electronic formats. There are several things that people are doing in several directions. I really love the ebook package. I really love this new HINT format which has a lot of potential. I hope that it could be adopted. I hope its business window is not closed and people are not already entrenched in older and worse formats. And there are lots of developments in this area.

So again, let me answer your question whether I was able to do what I wanted. I would say that there is a lot of movement in the right direction. I don't think that my role in this movement was large enough, but I would like to think that I did some pushing there. But one of the things you get when you work at TUG, when you have so many very smart, very dedicated, very knowledgeable people use it, you learn humility. You just understand that almost anybody, our developers, is much better than you. You just must be humble and understand them.

PN: If you allow me, I'd like to change the subject a little bit as well again. You are from Odesa.

BV: Yes.

PN: Lots of people around the world do not know it very well. I have been to it. I went to Kyiv for a conference in symbolic computation in the late eighties and had the chance to do a very small trip because my wife is a nurse and Crimea helped us — the first place of nursing — and the fastest place to get to at that time was Odesa. And I have a very nice remembrance of that time. Right now, a city which is besieged, and being a short lead from Mariupol, Crimea, and all these places that we hear every day. Do you have friends and families in there that worry you?

BV: Yes, I have friends there. My immediate family is here [in the US], but I have a lot of relatives and I talk daily with people from Odesa. It's incredibly sad what's going on and I never even thought that it would be like this. Especially, I don't know what is your impression about it. Did you like it when you were there?

PN: The meeting, it was my first time inside the Soviet Union. People here in the US would not even travel to the Soviet Union at that time. And

I had to go to other places to *then* pick up a plane to go there. The computing was very rudimentary, especially symbolic computation. So everybody was very eager to talk to me. So I felt like I knew more than I really knew, and I felt that I could help a little bit more than I really could.

I had just started at the time playing with Maxima here and Richard Fateman had brought the Maxima code and had installed it on the VAXes at Berkeley. They were all very eager to experiment and we did run many computations with them over (postal mail) letters, letters that were written and say oh, we would like to try the integration on this particular function here in Maxima and see what happens. And then I will try and send them the result by mail, not email. And so this visit to there was very nice. I remember buying CDs for a dollar which were very, very good, Philharmonicas that were exquisite music. And while here in the US we would pay \$12 for a CD, \$14 for a CD. And it was a nice trip.

BV: It's interesting that you have been in at the beginning of Maxima; great program and I still use it almost daily. To tell the truth, it's my favorite computer algebra system. But speaking of Odesa, besides it's being beautiful and the city of my childhood, what I really like about the city, it's one of the things that Tony Judt — a philosopher and very interesting writer — called *Corner Cities*. I don't know whether you know this notion. It's basically a place where several different cultures come together, coincide, intermingle in the very old days, much before me, anybody from a difficult origin — Ukrainian, Russian, Greek, Jewish, Yiddish — it was a multicultural place in the best meaning of the city. It was much less than this in Soviet times when Greeks were deported, and so on, but still it started to become more and more multicultural and more and started to return to its old idea of intermingling of different cultures and different things.

What's going on now, I mean this aggression from Russia, is some sort of reaction to the idea of multicultural free life, because for me the idea of freedom, of openness, and so on, is something which really related to the city of my childhood. It's something which was important for me.

Nice that you have been there and nice that you played with Maxima. It's old days, it's a great program and I really love it. I work with all, I think, or most commercial computer algebra systems, and now I return to Maxima.

PN: When I found out that it could do integrations and that later on I found out there is an algorithm

to do integrations. If a function has an integral, it *will* compute it. It doesn't tell you how long it will take, but it *will* compute it. And that was one of the things that meant the most in computing for many years.

BV: It looked like magic. And since I was trained to do this integration in the old Soviet manner, when it would probably be considered cruel and unusual here, when they just made you to work and work and work on this. And when they saw how Maxima was doing. . . .

PN: Do you think that this aggression from Russia could have been averted? Like more integration, more transit in between the two societies that were built after the breakup, more that there was no way that it was written on the wall that the autocratic government in Russia would only be to this enemy.

BV: I'm not a specialist in this, and I have . . . It's very difficult to say. My gut feeling is that Russia had enough problems and enough of very difficult things inside that it was very tempting for them to try to solve these problems on the path of war and aggression. So my gut feeling is that, at some point, it was probably inevitable at some level. But again, I'm very much afraid of saying something in the field which I'm not competent, so it's just my thought.

PN: We've run out of time. I wish you the best for especially for your family that stayed behind. That probably would be the worst thing that you can have with us and we share concerns with you. I guess every day I have at the back of my mind people that I have known there, and I have very long time, and we should do more about this in the US.

I wish you a very successful future at CZI and also with that, because your goals for accessibility and ebook are just top priorities right now. And thanks for taking the time to talk with me.

BV: Thank you very much for very interesting questions and very thoughtful talk. I really enjoyed it very much. Thank you very much. And let me use this occasion to tell you how I'm grateful for everything you have been doing for this conference. It would be absolutely impossible without your huge, huge, huge work.

PN: It was nothing. Thank you. All right.