



by Fernando González, Transener, Argentina

Protection, Photography and Music

We often talk about the art and science of electric power systems protection. Since there are many cases when formulas and algorithms does not help, we need to use our intuition and sense of beauty. That is probably why there are people like Fernando between us.



1 Fernando Gonzales, working at his music lab

Work and Hobby

The call to write this note motivated me to think about the relation between my profession and my hobbies. My profession is electrical engineer and my hobbies are music and photography.

- Am I a good musician?... I don't think so.
- Does it worry me?... No.
- Am I a good photographer?... No again.
- Does this worry me?... No.
- Am I a good engineer?...I hope so!
- And I would worry if I wasn't.

I also wondered if I enjoy music, photography and engineering. And the answer was yes in all three cases. Obviously, I do not enjoy all three activities all the time, but with all three of them I find moments of pleasure. But the most important conclusion to which I came is that with my profession I have obligations, but with my hobbies I have the freedom of doing them only when I have desire, and have the necessary elements within reach.

Photography

My interest in photography began at the age of 12, when my aunt gave me a book on photography that explained how cameras work and what effects could be obtained changing the shutter speed, the opening of the diaphragm, and the film's sensibility. Unfortunately, I didn't have a camera to practice on, so initially I had to be content with reading the book over a thousand times and plan what I was going to do when I had a machine.

Some years later I bought an instant machine (Polaroid). With this camera I had the advantage of not having to develop the photos to see the result, but it did not have the capability to change the parameters of speed and diaphragm, therefore, I could not experiment as much as I wanted. So I left this hobby, until years later, at the age of 26 approximately, my father-in-law gave me an old Olympus camera, which was not reflex, but had the functions of speed and diaphragm. With this

camera my interest for photography appeared again. At this moment I could start to practice what I had learned so long ago.

I recovered the book and began to experiment. Sometimes I loaded the camera with color film and sometimes with black and white film. The black and white pictures are my favorite. This camera accompanied me during my first years in Buenos Aires city and my first trips abroad. I kept the camera, although I don't use it because of the technological changes - a few years ago I bought a digital camera.

With the digital camera the possibilities of experimentation were extended. Besides having functions of speed and diaphragm, the digital camera allows me to edit and retouch the photos with the computer. This replaces the need to mount a small laboratory to develop and copy pictures. With this new technology, the laboratory is digital and I can carry it to any place I have a computer at my service.

One of my favorite things I like to do is take pictures of daily objects. Then I like to modify the colors, the contrast, the brightness

and mix them with landscapes. For example, to extract the whole celestial sky that exists at the back of a building and to place it by the picture of a transformer's bushing taken very closely.

Another thing I like to take pictures of, is musical instruments. And here I continue with my other hobby:

Music

At the age of 10, in primary school, I began to study violin with an instrument that I inherited from my grandfather. My grandfather was an auto mechanic and, in addition, he was a violin player in a tango orchestra. I studied violin three years, but because it was very difficult, I gave up and began to study piano. My studies of piano were not very consistent, but they allowed me to learn enough to accompany a choir in secondary school. While finishing college, I took part in a competition of Argentine's folk music, with a piano, guitar and drums trio, but without very much success. Though my music studies were not very constant, during this time I liked to try to learn to play different instruments. So

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I learned some notions of guitar and harmonica. And even though during this time (1980s) it was not popular (at least in Argentina) to use computers for music, I was dreaming of being able to use one at some time to create music. During the university years, I stopped playing music and dedicated myself completely to studying engineering. Once I started my career and began working in protections, I felt the need to return to music.

Sound cards for computers were already a reality in the 1990s, so I bought this one with FM sound synthesis and began to experiment. With the sound card and sequencer software I could write scores, assign different sounds to the different voices, and control some effects. On the one hand this was a great advancement -- I was using a computer for the first time to do music! But writing the song was writing the score by means of the mouse, the results were very "mechanical". In addition, the sound synthesis for FM was not very good.

Therefore, some time later, I decided to save money to buy a MIDI keyboard and a sound card with sampler synthesis. This synthesis is based in the digital sampling of real sounds. With this card, the sounds that I generate in the computer are more realistic, and the interpretation of the songs is more humanized, since the MIDI keyboard, connected directly to the sound card, allows me to execute

2 Digitalized violin



the sounds with the keyboard, in real time.

My music lab consists basically of a MIDI keyboard, amplifier, computer, sound card, and music software. The main music soft I use is a sequencer. A sequencer is software that records the different voices that will be played by the sound card. In addition to the sequencer soft I use some plug-ins that execute different samplers (virtual musical instruments). In addition to the sampler synthesis, I use some digital emulators of analog synthesizers.

Music and protections

These technological tools to create music allowed me to join the engineer and the musician in me. My knowledge of engineering allowed me to investigate the different ways of sound synthesis, and allowed me to experiment also with the sampling of my own sounds. The engineering concepts helped me understand how the sound cards interpolate and generate sounds of notes that were not sampled, on the basis of some sampled notes. So narrow, it turned out to be, the relation between the sampling of sounds and the sampling of signals

in the digital protections that often I doubt if I am sampling the note of a guitar or analyzing a single-phase fault!

I don't know if Fourier managed to imagine the different applications actually developed on the basis of his Series and Transforms.

My aspirations as a musician are modest. Normally, at night I connect the earphones, so I don't disturb my family, and play the keyboard to disconnect myself of daily problems. I also like to play the keyboard during family parties, to accompany my wife, my mother or anyone who likes to sing.

Composing music

Last year I had the opportunity to write accompanying music for a comical play. It was an experience that I liked and would like to repeat, since among the things that I enjoy more than creating music is creating incidental music. To compose the music for a play I had to be present at rehearsals and to create based on the situations the actors were acting. As soon as I had an idea, I showed it to the directors to see if they agreed. As soon as we had consensus, I went away to my



Fernando/auto portrait

computer and assembled the final version, which was finally sent by e-mail. In some cases, I had to re-record some parts, because the final version did not convince them for aesthetic reasons or because it was too long or too short for the scene.

My experiments with the keyboard and the computer are mainly pieces that I write imagining scenes of hypothetical movies. If I had been a professional musician, I would have been more interested

3 Inside Quequen's lighthouse





in becoming a composer of cinema soundtracks than to be a stage musician.

Besides playing music, music is always present in my house and in my work. When I am working I play background music. The type of music that I play depends on the work that I have to do. In my house I also play music all the time. I like to go to my music library and choose the disc to play depending on the moment and the mood. In my collection it is possible to find jazz, instrumental music, tango, folk and Beatles. I have a special interest in collecting covers of Beat-

les' songs done by other musicians. I have versions of Beatles' songs by jazz groups, versions by tango orchestras, instrumental versions, and versions sung in different languages. The strangest version that I have is the song "All You Need Is Love" sung in Cameroon language. There are also interesting versions that I have that are done by Brazilian artists, who give to the songs a Bossa Nova touch.

My wish is to obtain versions of all the songs that the Beatles recorded. In case I don't obtain all the versions, I will have to complete the collection with my own versions.



Fernando Gonzales works at the protection and control department of Transener, the argentinian high voltage transmission company. His main tasks are related with Wide Area Protection Systems and Special Protection Systems. He graduated as an electrical engineer at Universidad Nacional del Sur in Bahía Blanca, Argentina in 1993. He is Regular Member in SCB5 of Cigré, representing Argentina.

Finally, in my point of view, the pillars of a hobby (and why not a profession) would be: to learn, to share, to comprehend, and mainly to enjoy.

Four shots of Fernando's violin



4 Buenos Aires' tower with fireworks at the back



5 Buenos Aires' tower with power transformer at the back

