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## Asuar Digital Analog Computer

### COMDASUAR

In his book “La música electroacústica en Chile, 50 años” (The Electroacoustic Music in Chile – 50 years) Federico Schumacher dedicates one chapter to introduce, describe and analyze the Asuar Digital Analog Computer: COMDASUAR, a personal computer dedicated exclusively to musical purposes built from scratch by José Vicente Asuar in 1978 in Santiago de Chile. At the end of that chapter the author writes the following about the composer and engineer: “Hopefully these lines that we have written about everything done by him during more than thirty years of work in our electroacoustic music landscape, will pay a fair and perhaps forgotten tribute, to the person who has done more than anyone for electroacoustic music in Chile”.

José Vicente Asuar (1933) is a pioneer in his field; he was the first composer to build a studio for electronic music and sound processing in Chile in 1957. The construction of that laboratory gave him the opportunity to write his dissertation in order to get accreditation as Civil Engineer, and was also the origin of his activity as electroacoustic composer. His text “En el umbral de una nueva era para la música” (In the Threshold of a New Era for Music, 1959) is a foundational theoretical text considering the possible impact of new technologies in musical production. His composition “Variaciones Espectrales” (Spectral Variations, 1958) is considered by many as the first piece of electronic music played/performed in public in Chile, and probably the same is true for the whole of Latin America. Later on in his life, he won some prestigious composition prizes like the one in Bourges in 1975 for his work “Guararia Reparo” and the Dartmouth Arts Council Prize for his composition “Divertimento”. All along his career he was in contact with several important composers however Meyer-Eppler in Germany seems to be particularly important as well as Juan Amenábar in Chile.

His experience creating studios in Chile, Venezuela and Germany gave him mastery in the knowledge of sound studios and music labs. At the time he faced difficulties of starting the process of making a personal computer



**Fig. 1: José Vicente Asuar composing with COMDASUAR, Santiago de Chile 1978.**  
Photo: Picture from the LP "Así habló el Computador" by José Vicente Asuar.

in a country in South America where no industry was ready to receive his technical research the critiques about his computer based compositions were in general quite positive. COMDASUAR was made with the idea of creating a tool to explore different possibilities of computer music, on the one hand there is a system to generate sound that was a mixture between a digital and analog process and on the other hand there is a system to create algorithmic musical pieces, called "heuristic software" in the words of Asuar himself.

There are many things that make his work unique, amongst other things there is the equilibrium between his role as technician, as composer and as writer; in every step of his career there are texts, albums and technical achievements that show the coherence and consistence of his production. By the time José Vicente Asuar built COMDASUAR he already had composed music using computers, for instance he worked at the beginning of the seventies with the PDP 8 computer.

COMDASUAR stands for "Computador Analógico Digital Asuar" that translates "Asuar Digital Analog Computer". This machine was conceived and assembled entirely by José Vicente Asuar, the CPU was an Intel 8080 processor, the sound was produced using 2 timers, each one with 3 voices, therefore COMDASUAR was polyphonic (6 voices). COMDASUAR's software was completely programmed in machine language; some of the software that Asuar coded and called "heuristic software" can be considered today as algorithmic composition software. Asuar produced one educative and artistic album using COMDASUAR, that album is entitled "Así habló el computador"

(Thus Spoke the Computer) he published a comprehensive report in 1980 about COMDASUAR in the journal “Revista Musical Chilena”.

### **Conclusion**

Often when we hear the expression computer music we think in composers that have used the computer – with different needs, approaches, methodologies and/or techniques – to process sound, to do compositions, to prepare the scores etc. However the group of those composers who also were able to build – totally or in part – their own computer machines to produce their work is very small, the fact that José Vicente Asuar made the “Computador Analógico Digital Asuar” COMDASUAR in 1978 in Chile and used it to create different kind of compositions constitutes a unique artistic and technical process in Latin America.

I also want to point out three unique characteristics about COMDASUAR: its experimental character, the fact that COMDASUAR can be seen as a compendium of creative and inexpensive technical solutions, and the fact that the need to build such a machine is exactly in between technical and artistic domains.

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### **References**

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