Robert MASSEN (* 08-Dec-1943, + 31-Aug-2023)
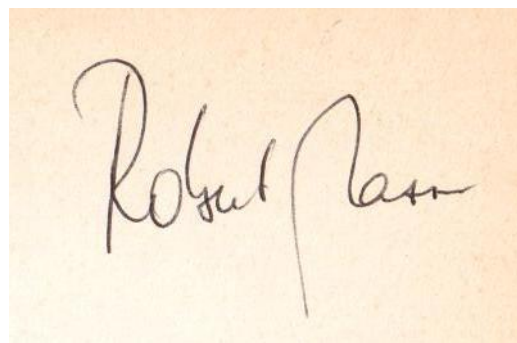
By [Francis Massen](), Computarium, October 2023

Robert MASSEN was born in the middle of WWII in Pétange, a small town on the southern border of Luxembourg. He was my twin brother, preceding my birth to our unprepared mother by 20 minutes (she did not know that she was pregnant with twins). We attended primary school in Obercorn, sort of a suburb of Differdange where our father worked as an electrician in the HADIR steelworks. Our secondary studies were made at the [Lycée Classique de Diekirch](), where we spent 7 years staying in the adjacent boarding house (Pensionnat Saint Joseph).

We both were enlisted in the mathematical/physical B section, studying 4 languages (German, French, English and Latin) and a rather serious curriculum of mathematics and physics. In the Pensionnat, we both were members of a tight-knit group of 5 friends who played music in a band called "Les Filous" (see fig.1). We became somewhat famous in Diekirch for our "Thé Dansant", which was a music/dancing event held on Sunday afternoons, at an hour where the parents were less opposed to let their daughters slip free from parental supervision.

After the Baccalauréat ("examen de fin d'études"), Robert, who was a bit of an electronics maverick, chose to study electronics at the RWTH Aachen (i.e. "Rheinisch-Westfälische Technische Hochschule" of Aachen, Germany), whereas I started studying physics/mathematics to become a high school teacher. However, before starting his studies at the RWTH in October 1964 he made a 2 month long internship at Radio Luxembourg and at a small metalworker business. He passed his final exam (Dipl. Ing.) at the RWTH in June 1969. His diploma work was on infrasound. Used by the military in WWI to locate the enemy artillery, infrasound was then more a problem of urban construction, as these very low frequency sounds can build up in the narrow streets between high-rise buildings; today it is known as major annoyance produced by railway transport, traffic noise and wind turbines.

In 1974, after more than 4 years 'work as an scientific assistant, Robert received his doctorate (PhD) at the RWTH Aachen (Fakultät für Elektrotechnik), specialising in stochastic calculation methods. The title of his doctoral thesis is "Zur Problematik des fluidischen Rauschens und seiner Anwendung in

1963: Robert MASSEN, Roland Fritz, Lucien Schintgen, Paul Quintus, Francis Massen

Fig.1 The band "LES FILOUS" in 1963

Fig. 2: PhD diploma

der stochastischen Rechentechnik" (fig.2 and 3).

Fluidic elements are analog or digital non-electronic components working with flowing air or liquids. Stochastic calculations can improve the signal/noise ratio of any signal by injecting a specially designed sequence of stochastic pulses into the noisy stream.

Bild 54   Fluidische stochastische Umsetzung:
a) nichtlinearer b) linearer Druck/Stochastik-Umsetzer
c) erzeugte Zufallsfolge
d) fluidische Rauschquelle
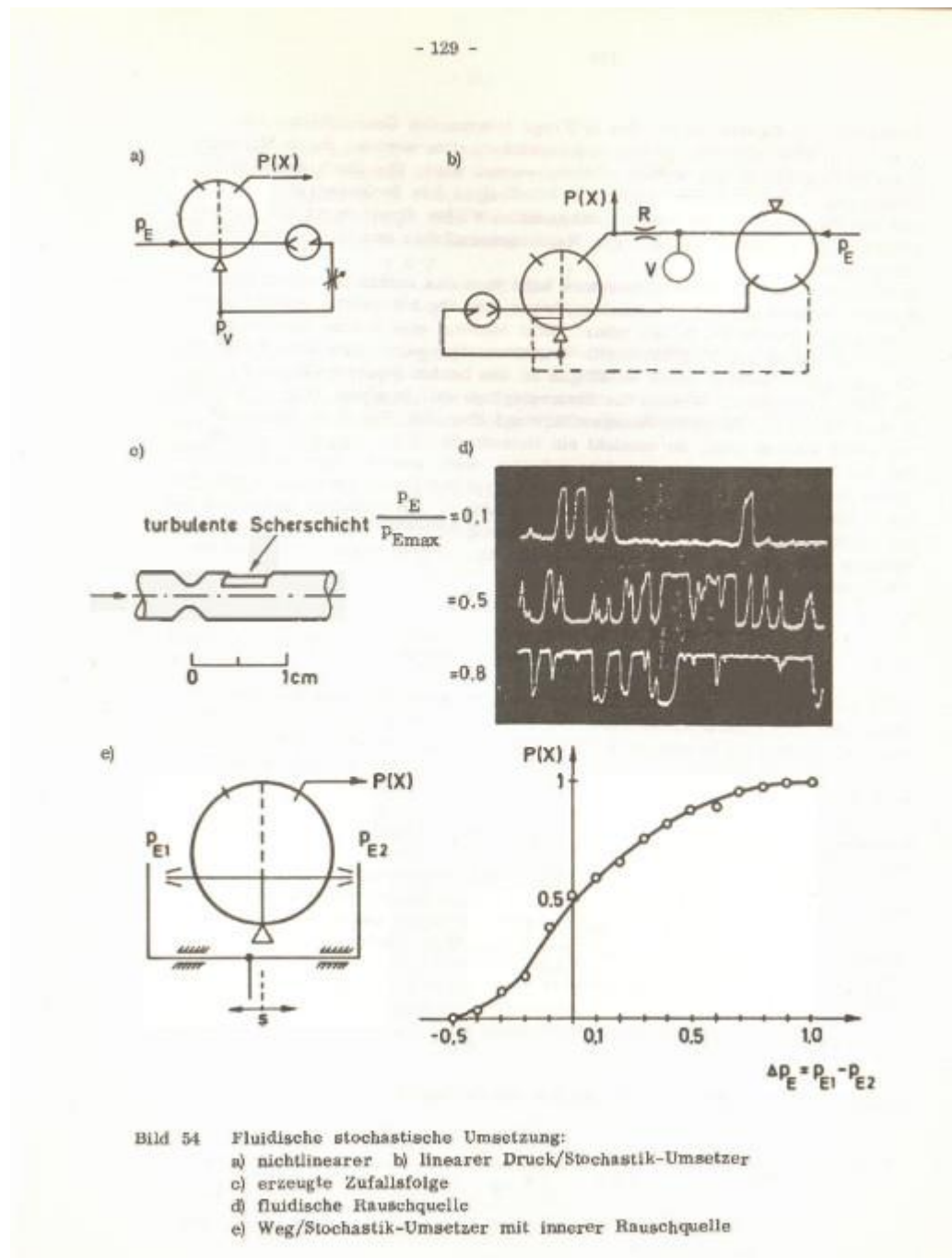e) Weg/Stochastik-Umsetzer mit innerer Rauschquelle

Fig. 3: Page 129 of the PhD book

Robert wrote the first ever book on **stochastic computing** (see **Ref.5** for a 37 page history on stochastic computing by pioneer Brian R. Gaines) published in 1977 by the Hanser Verlag titled "Stochastische Rechentechnik (fig.4)

Fig.4: First book on stochastic computing

In 1974 Robert started working as a "Dozent" at the FH Konstanz (Fachhochschule Konstanz, located next to the German/Swiss border, the English title is "University of Applied Sciences"). He habilitated as a professor and got tenure in 1975. At the FH he developed for instance an instrument to detect

water leaks in buried pipes using special microphones, correlation and stochastic methods; this worked even with heavy traffic running on the street above, which was a novelty at that time.

He then gradually switched over to digital image processing, with the aim to develop industrial systems. In 1984 he was the founder of the **Steinbeis Transfer Center for Image Processing**, a research facility whose goal was to develop customer specific vision systems:

1984 - Foundation of the Steinbeis Transfer Center for Image Processing

Founded by Prof. Dr. Ing. Robert Massen with customer-specific developments of image processing systems for industry at the University of Applied Sciences Constance.

Fig. 5: Icon of the Steinbeis-Transferzentrum

4 years later, he founded **EyeTec GmbH**, which built the **VideoSpeedMaster** for contactless measurements of length and speed, and **the DeltaMaster** for thickness measurements (see **Ref. 1**)

In 1992 the company **MASSEN machine vision systems** was created; it moved to the Baumer Beteiligungs GmbH building in 2001, and was rebranded in 2007 as "**Baumer Inspection GmbH**" (**Ref.6**)

1992 - Foundation of MASSEN machine vision systems GmbH

Fig. 6: Icon of Massen visions systems GmbH

In 1998 he co-founded the **LUXSCAN** company located in Luxembourg (now member of the **WEINIG** group), which specialises in laminate, panel and wood inspection systems.

Together with his son-in-law Dirk Rutschmann, he was also cofounder of the **corpus-e AG**, a company specialising in optical scanning systems for body parts, like individual medical compression sockets for people with leg problems, and today foot scanning systems as the **ShoeDNA scanner** for ski boots fitted to the individual foot (**Ref. 4**).

In 1996, he was one of the 4 authors of a book on digital image processing published by Springer (Fig.7); he wrote the first of the 4 chapters titled "Sehen, Erkennen, Entscheiden" ("seeing, detecting and deciding").

Fig. 7: Digital image processing book

Fig.8 gives a list of a few of Robert's publications concerning optical recognition and digital image processing. See **Ref.3** for a list of many of the publications which he authored or co-authored. He held about 98 patents (see DPMAregister -> patents > DPMAregister > Search > enter Robert MASSEN in the "Applicant/owner/inventor" field), many in the field of optical recognition or classification.

Fig.8: Some publications of digital image processing methods

Robert went into retirement in 2007 and continued work as a freelance consultant. About 10 years ago, he suffered from a difficult to handle Ulcerative Colitis, and later began to show first symptoms of the incurable LDB (Lewy Body Dementia). He was well aware of his mental deterioration, but continued to be interested in technical systems. From November 2022 on, he lived in a specialised caring home (Haus Waldau) in Stuttgart-Sillenbuch, were his wife Ulla and daughters Muriel and Joëlle visited him very often, took him home for the day and tried to alleviate his distress. I last met Robert in June2023, and we managed to speak of computers and digital stuff, and had fun in the restaurant.

Fig.9: Robert Massen, wife Ulla and twin-brother Francis, 23 June 2023
(left to right, photo Florence Massen)

Sadly his illness progressed very rapidly during the following weeks, and he passed away the 31th August 2023, surrounded by his wife and daughters. His ashes were put to rest at the Stuttgart Sillenbuch cemetery the 2nd October 2023, with many of his former students and collaborators present to give him a last farewell.

We miss him badly.

PS: Robert was a contributor to the Computarium. He donated several Mac computers and a SyQuest drive assembly, all of which have been restored to working order.

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References:

Ref.1: https://www.baumerinspection.com/us/en/baumer-inspection-navigation/company/history/a/geschichte

Ref 2: VisionSystemsDesign: Systems focus on performance, robustness and stability. A discussion with Robert Massen, Baumer Inspection.
https://www.vision-systems.com/cameras-accessories/article/16738877/systems-focus-on-performance-robustness-and-stability

Ref.3: https://www.researchgate.net/profile/Robert-Massen

Ref. 4: https://www.northdata.de/corpus.e+AG,+Stuttgart/HRB+21610

Ref.5: Brian R. Gaines: Origins of Stochastic Computing (see page 32 for a mention of Robert Massen)

https://pages.cpsc.ucalgary.ca/~gaines/reports/COMP/OriginsSC2019/OriginsSC2019.pdf

Ref.6: Video on Baumer Inspection: https://youtu.be/S6NObeWdtp4