

## In Memoriam Prof. Dr.-Ing. Dr. h.c. mult. Friedrich (Fritz) Ackermann 1929 - 2021



Em. Prof. Dr.-Ing. Dr. h.c. mult.

### **Friedrich (Fritz) Ackermann**

Professor Emeritus of Photogrammetry  
and Surveying and Former Director of the  
Institute for Photogrammetry at the  
University of Stuttgart

We mourn the loss of our dear colleague and institute founder Friedrich (Fritz) Ackermann, who passed away on December 4, 2021. He founded the Institute for Photogrammetry with his appointment to the University of Stuttgart on April 1, 1966, and was its director until March 31, 1992. With his research and development work in the field of analytical and digital photogrammetry, he significantly influenced the developments and progress in these two fields and helped the Institute of Photogrammetry to achieve a worldwide reputation. For many younger photogrammetrists he was always a role model and stood for the close connection between basic research and application. With the software developments he initiated with his spin-off inpho GmbH, Stuttgart (today Trimble), he was able to drive very successful technology transfer from research to practice.

Fritz Ackermann was born on November 1, 1929 in Moosbeuren (Ehingen) on the Danube. As a result of the Second World War, his school education, like that of many of his generation, was not entirely easy. He attended the elementary schools in Moosbeuren and Ehingen (1936-1940) and then the grammar school in Ehingen, where he graduated in 1949. Few knew of his inclination towards physics - he enrolled in the same year at the University of Tübingen to study physics. A year later, he began studying surveying at the Technical University of Stuttgart - a stroke of luck for photogrammetry. He finished his studies in 1954 and decided to get his first taste of practical experience as a young graduate engineer. For this purpose, he joined Zeiss-Aerotopograph, Munich, and was able to help developing film-based aerial photogrammetry and photogrammetric evaluation equipment in analog photogrammetry. After almost four years of practical experience, he decided to enter international photogrammetry research and development and in 1958 applied to the International Training Center for Earth Sciences (ITC), which at the time was located in Delft (now Enschede and part of the University of Twente).

Here he also completed a master's degree in photogrammetry and got to know other recognized companions of photogrammetric research such as H.G. Jerie and C.M.A. Van den Hout, who at this time had already entered the field of analytical photogrammetry. The analytical formulation of the bundle block adjustment had just been worked out by D.C. Brown and published by H.H. Schmid, who used it to perform the first world-wide photogrammetric triangulation for geometric determination of the Earth's figure at the National Oceanic and Aeronautics Administration (NOAA) Institute. The analytical block adjustment also fascinated the young researcher Fritz Ackermann, who was able to write a doctoral thesis at the ITC on "Error-Theoretical Investigations on the Accuracy of Photogrammetric Strip Triangulations" (DGK Series C, Issue No. 87) and defended it at the University of Stuttgart in 1964 - supervisor was Prof. E. Gotthardt. For this dissertation he was awarded the Otto-von-Gruber Award of the International Society for Photogrammetry (ISP). When Prof. E. Gotthardt was appointed to the Technical University of Munich in 1965, his professorship in Stuttgart was vacant and Fritz Ackermann was able to demand the foundation of a new Institute for Photogrammetry in his appointment negotiations - he took over its direction on April 1, 1966.

In research and development Fritz Ackermann has set standards worldwide. In analytical photogrammetry, the block adjustments according to the method of independent models (software PAT-M) and the ray bundle (software PAT-B) are associated with his name. It was he who published the method of image correlation by the method of least squares and transferred it into application (later software MATCH-T). In the late 1980s, he worked to integrate GPS into photogrammetry, thus introducing GPS-based aerotriangulation to measure directly projection centers by DGNS - now a matter of course. With the advent of airborne laser profiling, high-accuracy laser profiles were successfully acquired and analyzed. In the early 1990s, he worked on digital aerotriangulation and transformed it into a fully automated workflow (software MATCH-AT). In total, 26 PhD students and 3 post-doctoral students were supervised by him, who went on to successful careers in administration, universities and colleges, and industry. No wonder that he was often called the "father of modern photogrammetry". In addition to research and development, technology transfer was always important to him: from 1973 to 1991, he organized the Photogrammetric Week symposia at the University of Stuttgart every two years, in cooperation with Carl Zeiss, Oberkochen.

With so many successes, honors were not lacking. In 1988, for example, the Helsinki University of Technology honored him with an honorary doctorate Dr. tek. h.c., and four years later the Vienna University of Technology awarded him the dignity of Dr. tech. E.h. The University of Wuhan awarded him an honorary professorship Prof. h.c. in 1989 - a distinction comparable to the honorary doctorates here. At the University of Hanover, he was awarded the Dr.-Ing. E.h. degree in 1995, and in 2009 he received the Dr.-Ing. E.h. award from the Moscow State University of Geodesy and Cartography (MIIGAiK). Furthermore, he was an honorary member not only of the German Society for Photogrammetry and Remote Sensing and the ISPRS, but also in the corresponding professional societies in the USA and Great Britain.

With Fritz Ackermann we and the Institute for Photogrammetry at the University of Stuttgart lose an extremely successful scientist, academic teacher and a kind, friendly and humble colleague. He was always humorous in his dealings and, in addition to photogrammetry, especially loved music, including playing the piano. We fondly remember the 50th anniversary celebration of the Institute of Photogrammetry in April 2016, which he introduced with a piano sonata - at the age of more than 86. Besides his fondness for music, mountain hiking and skiing were important to him; he was almost 80 years old when he climbed Kilimanjaro. Until the end he tried to keep up professionally. At the photogrammetric weeks he was an honorary participant until the end. We will miss him very much and cherish his memory.

Dieter Fritsch and Uwe Soergel  
Institute for Photogrammetry of the University of Stuttgart