

# A Sri Lankan at the BUAS

Born in Sri Lanka, Studies in Thailand and Germany, and Master's Project in Switzerland – A Reflection by Lalith Niroshana Wickramaratna



**L.N. Wickramaratna** in the operating theatre extracting a part of the abdominal aorta of Göttinger minipig. Photo: A. Pfenniger

Alois Pfenniger who helped me with various administrative formalities. The determination and dedication shown by BUAS in having me at the laboratory surely motivated me.

The overall objective of my project at BUAS was to develop a prototype of an energy harvesting micro-generator that makes use of arterial wall deformation (Windkessel effect) as an energy source. The current state of such generators was not sufficient to meet the energy demands of medical implants. My project included a formulation of arterial wall dynamics and a practical implementation of an appropriate transduction mechanism to convert arterial wall movement into electrical energy. The results of my work were very promising. The prototype could deliver an average power of about 25...40nW and a peak power of about 1µW. Both values are higher than those of the current state-of-art systems reported in scientific literature.

The working etiquettes in then-Sri Lanka was largely dependent on hierarchical levels, which is an affluent of British colonial influence. This was one of the reasons for my leaving. In Germany and Switzerland, I was pleased to be called by my first name. However, in Germany there was constantly a shadowy pressure on me. At BUAS in Switzerland, however, while I had predefined sets of goals to be achieved, I always felt enough space to breathe in my own rhythm, which is a very conducive environment for research. I especially appreciated the weekly meetings in English. Given that the local languages are German and French, this was not natural and in fact a generous gesture. It allowed me to focus on research during the meetings and not on brushing up my language skills. I also appreciated the encouraging remarks by Prof. Dr. Volker Koch and Mr. Alois Pfenniger. I would say they had the «know-how» to get the best out of me, which was not the case in most other places where I had previously been. The six months of stay in Switzerland not only allowed me

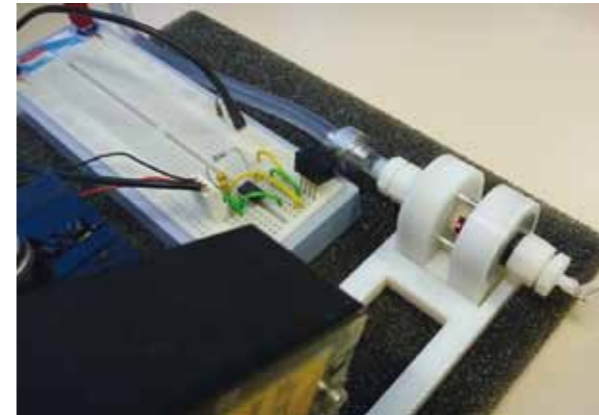
to complete my master's thesis but it also made me acquire knowledge and experience in areas like software design and animal experimentation. Living in socially and culturally different places such as Thailand, Germany,

France, and Switzerland has posed various challenges on me, but it has undoubtedly been instrumental in shaping my career as well as personnel growth. My experience with different cultures has developed my character and it has broadened my understanding of their different values. I believe that this may give me a competitive edge when I return to my own country.

Aside from research, various social activities and excursions were organized. A night-hike to Chasseral Mountain was the glowing highlight of such activities that I will remember for the rest of my life. I finally take a bow for those who helped me in so many ways to make this dreamy stay successful both from a research point of view as well as social.

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Prototype of an energy harvesting system using the expansion/contraction of an artery to generate electrical energy. Photo: A. Pfenniger

Lalith Niroshana Wickramaratna successfully completed his bachelor's studies in mechanical engineering at the University of Peradeniya, Sri Lanka, and his master's studies in energy technology at the Asian Institute of Technology, Thailand. Then he started a second master's degree program in biomedical engineering at the University of Luebeck, Germany, and finished this program with a master's thesis carried out at the Bern University of Applied Sciences (BUAS) in Biel.



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