

Cover Letter

Dear Prof. Volli Kalm, Dear recruiting Committee,

I sincerely would like to apply for the position as assistant professor of Robotics at the Institute of Technology.

At the outset, to briefly introduce myself, I would like to stress that I have been working in the field of robotics since 2000. At that time, working on my master thesis, I initiated at the Artificial Intelligence and Robotics Laboratory of Politecnico di Milano, a first research work in the field of Humanoid-Robotics. Working together with Prof. Giuseppina Gini, we developed an anthropomorphic artificial hand capable of human-like movements and fine manipulation. Afterwards the research line continued with my PhD studies for developing an entire humanoid upper torso. The system resembled accurately the complex human arm musculature and was mainly intended as a test-bed to prove different control strategies and learning algorithms both at lower-level (joints force/impedance control and human reflexes emulation) and higher-level (direct/inverse kinematics models/algorithms, trajectories and task planning, sensory-motor perception and coordination). Here you can find a link to some other projects I was working on at that time: <http://home.deib.polimi.it/gini/Humanoid.htm>.

I worked at Politecnico di Milano for seven years as a teaching assistant in Robotics-1 and Robotics-2 as well as contract professor in Fundamentals of Informatics for two years. Together with my students and colleagues we developed many other robotics systems (biped and multi-legged robots, hand-exoskeletons for virtual reality and rehabilitation, vision systems, etc.), some of which were carried out in collaboration with public and private companies and research institutes within the context of European founded projects.

In the following link you can find also my web-page (<http://www.robocys.com/indice.html>) with some robots designed and realised by myself and the help of some students (we design completely the all mechanics, electronics and control system). You can also find a list of classes I was teaching in Politecnico di Milano.

Since 2007 I am working at DFKI in Bremen (The German Research Centre for Artificial Intelligence) where I am co-leading a research team in developing a wearable exoskeleton intended for tele-operation of heterogeneous robotics systems. Other research fields I am currently interested in are adaptive control strategies, modelling of non linear dynamic systems, recurrent neural networks, emulation of human segmental reflexes, integration of classical and bio-mimetic control strategies.

I am currently seeking a position in a good University where I can establish my own research activity in the field of robotics and also continue teaching which is, in my point

of view, of great importance for a researcher. I truly believe that one of my strengths is represented by the union between the capability to design and develop from scratch innovative and functional robotics system and the solid scientific knowledge that I matured in these years in the fields of control theory, robotics and artificial intelligence. If I am given the opportunity, I am ready to fully commit myself in developing cutting edge robotic systems that will promote both scientific and technological reputation of your department.

Sincerely,

Dr. Ing. Michele Folgheraiter.

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