

“实现2011”—— 架起瑞士苏黎世联邦理工大学与同济大学的桥梁

ETH Zurich Ballbot Builds Sino-Swiss Bridge

“The “Realize 2011” will be an outstanding experience for all the students involved and a starting point for more collaboration and innovation between Tongji and ETH.”

Prof. Dr. Roland Siegwart, Vice President Research and Corporate Relations

The project “Realize 2011” arose from the development of a ballbot, a robot able to balance and move on a single sphere (http://www.rezero.ethz.ch/project_en.html). Due to strong market demand the project “Realize 2011” aims at further developing the ballbot’s omni-directional wheels. Prof. Dr. R. Siegwart, ETH Vice President Research and Corporate Relations, initiated the project not only to advance with the technical development but also to seize the opportunity to work together with a Chinese University in order to gain further experience in Sino-Swiss collaborations. To find a best-matching partner Prof. R. Siegwart received support from swissnex China: The platform which promotes knowledge exchange between Switzerland and China in science, research, higher education and art connected Prof. Zhou Aiguo and his students from Tongji University with the ETH Zurich. The common project was kicked off in September 2011 and includes a 6-month stay from the ETH Zurich students Michael Neunert and Fabio Diem at Tongji University. The goal is to bring back to Switzerland the first batch of wheels made in China.

Cultural exchange through academic collaboration

The advantages China can offer for the “Realize 2011” project are various: shorter lead times and faster production, which means considerable cost savings. At the moment the special wheels cost 15000 RMB per piece and the students aim at bringing the costs down to around 300 RMB per piece. To find a matching company which will produce the wheels, the two ETH students could count on personal contacts from

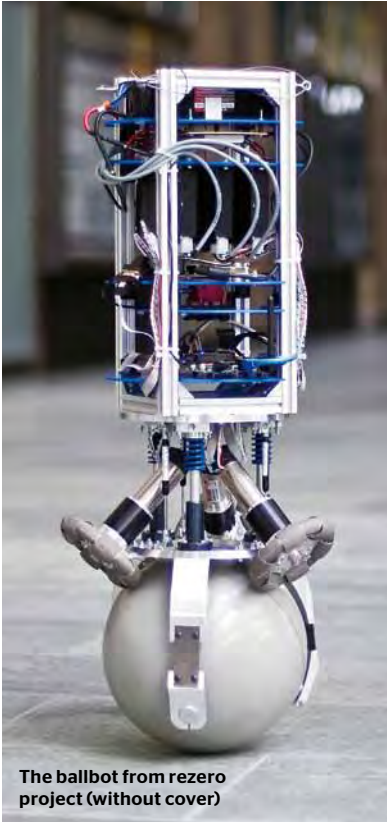
their Chinese colleagues as well as business to business platforms on the internet. Michael Neunert states: “Chinese companies are very quick, flexible and eager to make business and they know their métier very well, therefore it was quite easy to find suitable partners for the production”. However language is a big barrier, as many company websites are in Chinese and this makes the support from Tongji University very important. As a partner Tongji University participates in all stages of the project, most important during the redesign phase as well as in the search for production sites and manufacturing partners. Besides the institute’s good infrastructure its renown paves the way for business opportunities. “We cannot emphasize the importance of Tongji University, our local contact, Prof. Zhou and his students enough. Without them this project would be impossible”, clarify the two ETH students. Also the Chinese side is pleased about the very fruitful exchange of this Sino-Swiss project, as student Hong Jia explains: “Both sides can learn a lot from each other on a professional as well as personal level, through academic collaboration we exchange our culture and ideas.”

The end-consumers will find the development of the joint project for example on shopping and push cars, sack borrows, toys or sport equipments and later also in new transportation devices or house-hold robots.

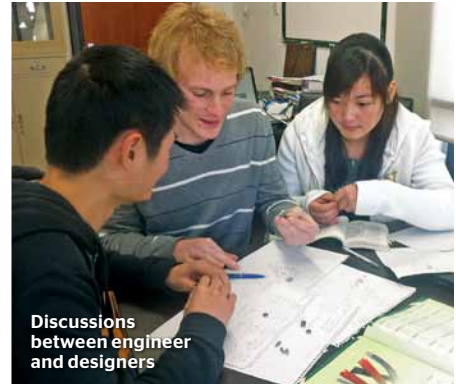
swissnex China accompanies and supports the students during the whole project duration. If you wish more information on “Realize 2011” and the robot rezero visit our website: www.swissnexchina.org



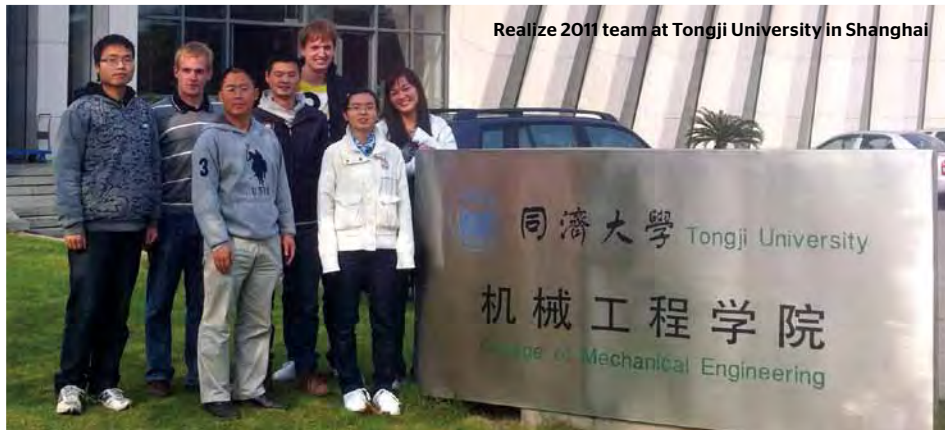
The ballbot from rezero project (with cover)



The ballbot from rezero project (without cover)



Discussions between engineer and designers



Realize 2011 team at Tongji University in Shanghai

“通过 Realize2011 这一具有启发性的项目，同济大学和苏黎世联邦理工大学工程学科的学生们共同合作，互相学习。我相信，所有参与此项目的学生都将获得一次非同寻常的经历。这个项目也是同济大学和苏黎世联邦理工大学开展更多合作和创新的开始。”

Prof. Dr. Roland Siegart, 苏黎世联邦理工大学科研及国际关系副校长

实现 2011” (Rezero 2011) 项目源自于球形机器人的发展，此类机器人能够在单一球面上保持平衡并行动自如。(http://www.rezero.ethz.ch/project_en.html)。为了迎合市场的强劲需求，该项目正进一步研发球形机器人的万向轮。“实现 2011”项目由苏黎世联邦理工大学主管研发与企业关系的副校长 R. Siegart 教授发起，此举不仅旨在促进技术发展，更是为了抓住与中国院校合作的机会，从中获取更多的中瑞合作经验。为了寻求最佳合作伙伴，Siegart 教授找到了瑞士联邦政府科技文化中心 (swissnex China) —— 一个致力于在科学、创新和技术领域推广和联结瑞士优势资源，并且促进中瑞双方交流与合作的平台。在此项目中，瑞士科技文化中心促成了同济大学周爱国教授及他的学生与瑞方的通力合作。合作项目于 2011 年 9 月正式开始，两位来自苏黎世联邦理工大学的学生 Michael Neunert 和 Fabio Diem 将在在同济大学进行为期 6 个月的科研工作。其任务是将中国制造的第一批万向轮带回瑞士。

瑞士联邦政府科技文化中心——中瑞关系发展之桥梁

中国能够为“实现 2011”项目提供帮助的优势是多重的；缩短工程时间，加快生产步伐，这意味着可以降低一笔相当可观的生产成本。为了寻求到匹配的车轮生产商，苏黎世联邦理工大学的学生可以借助他们中国同事的人际网络平台进行联络，也可以通过企业对企业的电子商务平台进行联系。Michael Neunert 指出：“中国公司的行动非常迅速、灵活而且对生意态度积极。他们对自己的专长了如指掌，因此我们能够很容易找到合适的生产合作商。”尽管如此，彼此之间的语言障碍仍然是一个大问题，许多中国公司的网站语言都是中文，因此同济大学的帮助极为重要。作为合作伙伴，同济大学参与了项目的整个过程。包括再设计层面、产品调查，以及制造商等重要方面。除此之外，学院有着良好的基础设施，这为商业合作铺平了道路。中方对整个项目有着举足轻重的作用：“我们的当地联络人——同济大

学，周教授以及他的学生们对我们的帮助实在太大了。如果没有他们的帮助，这个项目是无法完成的”，两位瑞士学生感慨道。同样地，中方也十分乐意帮忙，一个中国学生宏霞 (Hongxia) 说：“在专业领域及个人交流方面，我们都能从对方学到很多。通过学术合作，我们增进了文化和思想的交流”。

通过这个项目，终端消费者将会看到万向轮在诸如购物推车、玩具、运动器械，以及未来新型交通工具和家用机器人等诸多领域的广泛应用。

若要了解更多详细信息，敬请登录 www.swissnexchina.org



瑞士苏黎世应用技术大学

跨越边界是我们的座右铭

Used to Crossing Borders - The Zurich University of Applied Sciences



In January 2011, a delegation from the ZHAW travelled to Southeast Asia to witness for themselves the rapid economic growth and the broad interest of the Asian countries in application-oriented research and teaching in the West. Since then, several delegations from Asian universities have visited the ZHAW. With the recent visit of the North China University of Technology in Peking, we agreed to deepen the exchange.

ZHAW School of Engineering in China

The growth rates of the Asian markets are striking. It is still more striking to see an example of this tremendous development taking place in a production facility there. Master's students at the ZHAW School of Engineering had this opportunity. As part of a module in the MSE Master of Science in Engineering in China they visited Chinese firms and the Suzhou industrial park. Thirty-six of the world's 500 strongest companies invested in China's third largest industrial park. With the five pillars of microelectronics, precision instruments, biopharmaceuticals, new synthetic materials and high-end routing industry, the park has quickly moved to become a high-

tech area. There, the students visited a production facility of Unitron Hearing (Suzhou) Ltd., a subsidiary of the Swiss Sonova-Gruppe (Phonak), as an example of how Swiss companies are building their international supply chain through investments and partnerships in China. In addition to site visits, group work and homework was overseen by various Swiss and Chinese professors of precision manufacturing in Asia.

The ZHAW School of Engineering is cognizant of the importance of such cooperation and exchanges with Chinese Universities as partners for the future. Therefore, they would like to launch joint research projects, motivate faculty sabbaticals in China, or arrange for students to attend summer schools in China during the semester breaks. A summer school - similar to the established one in Minnesota (USA) - in cooperation with the North China University of Technology in Peking or at Hong Kong Polytechnic University is envisioned. The students should on the one hand be taught technical subjects and visit local businesses; on the other hand, and above all, they should get to know the country and its culture.



2011年1月，ZHAW 组团到东南亚，亲眼目睹了亚洲经济的飞速发展以及亚洲国家对于西方应用技术的研究与教学的浓厚兴趣。此后，许多亚洲大学代表团也拜访 ZHAW。最近来访的中国北方工业大学与 ZHAW 就进一步加深交流达成共识。

苏黎世应用科技大学工程系在中国

亚洲市场的增长率令人叹为观止。更吸引人的莫过于能在当地生产企业亲历这种飞速发展。作为他们课程的一部分，ZHAW 工程系的研究生们，就有机会参观中国企业和苏州工业园区。苏州工业园是中国第三大工业园区，已有 36 家世界 500 强企业在此投资。随着微电子，精密仪器，生物制药，新合成材料，和高端通信科技这五大支柱产业的迅猛发展，工业园区已发展为高科技园区。在那里，学生们参观了瑞士 Sonova-Gruppe (Phonak) 的子公司优利康听力技术苏州有限公司并以此为案例介绍瑞士企业是如何通过投资、合伙人关系来建立他们的国际供应链的。来自中瑞两国精密制造业的教授还辅导学生分组讨论和课后作业。

苏黎世应用科技大学工程系已经认识到日后与中国大学合作和交流的重要性。大学希望开展联合科研项目，激励教师来中国交流访问或组织学生暑期到中国参加夏令营。一个与中国北方工业大学（北京）或香港理工大学合办的，类似于在美国明尼苏达州创立的令营活动已经在孕育当中。通过该活动，学生们不仅能学习专业知识，参观本地企业，而且还可以从中了解中国和中国文化。



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Zurich University of Applied Sciences

The Zurich University of Applied Sciences ZHAW is one of the leading Swiss Universities of Applied Sciences with national and international significance. Its three facilities are located in the heart of the Greater Zurich Area, a platform in the globalized world. In addition to the ETH Zurich and Zurich University, the ZHAW complements the educational spectrum in this region.

The ZHAW offers numerous bachelor's and master's programs and training opportunities in the fields of architecture and civil engineering, health, applied linguistics, life sciences, facility management, applied psychology, social work, engineering, management and business law. The university is practice-oriented but scientifically grounded - in teaching, research, development and consultancy. Cooperation with national and international academic and business partners is hence extremely important.

ZHAW graduates are competitive in the job market after graduation, because in contrast to research university graduates, they have already acquired professional experience. Work skills today include international competencies: foreign language skills, intercultural know-how, international knowledge and openness. These skills are central to the effective cooperation in multinational teams and for the successful handling of foreign contacts. The teaching of these skills is therefore a clearly formulated goal of ZHAW. To this end, the ZHAW offers internationally-oriented programs and continually diversifies the mobility programs. Already there are more than 200 agreements with partner universities on all five continents - including several in China. The ZHAW has recognized that China offers great possibilities and opportunities, not only for businesses, but also for universities.

苏黎世应用技术大学

苏黎世应用科技大学（ZHAW）是瑞士职业技术类大学的典范，其声誉享誉全球。它有三个学院位于大苏黎世地区中心，是世界大融合中的一个平台。与苏黎世联邦理工学院，苏黎世大学并存，ZHAW有力补充了空缺，使苏黎世区的教育体制更完善。

ZHAW设有丰富的本科、硕士及职业培训专业，涉及领域分别为：建筑工程学、健康学、应用语言学，生命科学、设施管理学、应用心理学、社会学、工程学，学和法律学。大学将以科技为基础、以实践为方向的思想贯穿教学、研发及咨询工作中；并把与国内外知名学府及企业界伙伴合作放在举足轻重的地位上。

与只懂理论的大学毕业生相比，ZHAW的毕业生具备职业技能和经验，在人才市场上有强大竞争力。如今职业技能的定义中还包括国际竞争力，具体说是：多语言能力，跨文化交际能力，国际知识及开放的胸襟。这些能力是实现多民族团队有效合作及国际合同顺利签订的中心保障。ZHAW在教学中明确规划了对学生国际竞争力的培养，为他们安排了与国际接轨的项目，并不断丰富这些项目。大学已与5大洲的200多个大学建立了伙伴关系（其中包括几所中国大学）。ZHAW认识到，不仅对于企业，对大学来说中国同样有着巨大的潜力与机遇。