# B5 Impact

## B5.1 Training towards scientific independence.

***Potential for acquiring competencies during the fellowship to improve the prospects of reaching and/or reinforcing a position of professional maturity, diversity and independence, in particular through exposure to transferable skills training.***

To refine Eric

* People Management training skills = supervision of people / students / PhD students.
* Budget Administration = knowing how to use a budget. Learning by doing with the project budget in Berkeley and at TUM.
* Intellectual property Rights training = follow courses in US and in Germany.
* Business acumen. How to create a company = 2 courses with UnternehmerTUM for scientists back at TUM in Year 3.
* Possibly another People Management course to follow at TUM in Year 3 with the Life-long learning support unit scheme (people management course for University staff).
* How to write a grant = Course to follow back at TUM.

## B5.2 Contribution to career development or re-establishment, where relevant

To complete Eric

## B5.3 Potential for creating long term collaborations and mutually beneficial cooperation between Europe and the Other Third Country.

As a member of TUM, I will endeavor to contribute to create long-term fruitful collaborations between the University of California in Berkeley and the TUM through a triple strategy agreed between me, the ISAG leader Prof. Beetz, the TUM Department of Computer Sciences:

Exchanges of students up to Master level

Study Projects will be planned in common between TUM and University of California in Berkeley (starting from my former research group) mentors and mentored students. Short training periods will be planned on both sides to execute these projects, completed by a common summer school in the second year including all hands-on workshops, poster competition, invited internationally well-known speakers of the field.

TUM students will benefit from travel bursaries to be applied from usual German sources (DAAD, Alexander von Humboldt Foundation, Bosch Foundation, etc…). A duty of the newly recruited staff is to maintain a small database of potential grant possibilities to support this very relation. I will be supported by the TUM-Forte office to identify the best funding sources, and I will oversee the quality of the applications written by the students. This shall ensure a pipeline of regular financially supported student projects at the core of long-term exchanges with University of California in Berkeley.

University of California in Berkeley students will equally apply to their usual funding bodies to finance study travel abroad.

Both TUM & University of California in Berkeley students will be requested on their return to report on their experiences abroad to their mentors and to the new students (both technologically and concerning the daily life).

The existing TUM Master Programme “*Robotics, Cognition, Intelligence*”[[1]](#footnote-1), shall be the pipeline of exchanges, and it will be steady enough after the conclusion of my fellowship.

Thank to my professional and personal experience, I will be a successful example and a role model for young TUM students / Ph.D. students showing scientific and mobility achievements. One of my main contributions will be to raise the awareness for the program in the US and to help in recruiting more US graduate students.

**Expected results:** 5 students exchanged between University of California in Berkeley and TUM during the period of my fellowship; up to 10 students in the following five years after the completion of the IOF contract. A summer school during the second year (either in Munich or in Princeton) with up to 20 participants.

Exchanges of scientists from Ph.D. student level to post-doc and senior scientists

The German Research Foundation “DFG” offers a multitude of programs to sustain research exchanges and collaboration with the US, and complements nicely other programs from foundations for the same purpose (DAAD, Alexander von Humboldt Foundation, Bosch Foundation, etc…). During the period at TUM, I will help to connect principal investigators of both institutions in order to win additional resources to sustain the flow of activities with University of California in Berkeley. In order to do that, I will exploit the potentialities of the well-organized offices network at TUM, which will help me at three levels: a) by the TUM-Forte office concerning the non-scientific parts of the projects to be submitted; b) by the IASG Chair administration and the TUM Computer Sciences Financial Department concerning the financial details of such proposals; c) by the TUM Legal Office (in particular regarding Intellectual Property Rights - IPR). My role will then remain in the frame of scientific exchanges developments, while the administrative burden will be taken by these three supporting services.

**Expected results:**

Up to 3 Ph.D. students, 2 post-docs & 2 senior scientists from each side performing research training or experiments in the corresponding University of California in Berkeley or TUM laboratories.

1 common research projects developed in the first year; 1 common research project (eventually with other partners) financed in the second year. Clarity of IPR.

Another possibility – however highly competitive - for projects developed in common will be to insert research teams from University of California in Berkeley into FP7 European Research proposals, with a request to the NSF, or the NIH to finance the US part.

Ideally, high-level scientific publications can be acknowledged as part of this collaboration in internationally significant peer-review journals. A common patent with its exploitation plan would also show the success of this privileged scientific pipeline between University of California in Berkeley and TUM.

Cultural & corporate understanding

The socialization part is a key point of this plan and cultural awareness will be part of each proposed project. This cultural awareness will be acquired on both sides by ensuring that students and scientist have time during the exchanges to visit important historical areas, eventually be accommodated by locals (especially for the students), be proposed German and English courses. This cultural knowledge will be linked to the visit of main industrial sites to approach nearer the different industrial cultures (for some of the students it will be an additional opportunity to stay longer by identifying potential interested companies to work for). The TUM will contribute with enlisting the Princeton visitors onto its IKOM[[2]](#footnote-2) program of visits to industries.

## B5.4 Contribution to European excellence and European competitiveness

My research experience will bring to University of California in Berkeley and back to TUM a clear scientific competence, a competence inserted in that fashion in the host institution and Chair. There are few competences of that kind in Europe that, at the same time, helps to preserve from the “Brain Drain”. I will bring a more theoretical angle to the common xyz scientific approach of the chair. The IASG follows the angle of application-orientated systems, which I will complement perfectly, contributing to the international development of the Chair and the Faculty. With my additional contacts, I will help to concretize other projects ideas of the Chair and of the Computer Faculty to answer the interests of European companies (main though-after partners in this field are: Kuka Roboter GmbH, The Source Works, Aldebaran Robotics, etc… other examples??) and American ones such as Willow Garage and Bosch USA.

## B5.5 Benefit of the mobility to the European Research Area

As can be evinced from my curriculum vitae, I have a significant mobility ability and wishes not only to maintain my scientific collaborations with a recognized world-leading research institution (XYZ in Slovenia, University of California in Berkeley, Bosch in Palo Alto etc.), but also to use the scientific and technological links that I have in XYZ (academia 1, company 2, etc.) and Italy (University of Genova, CNR, CNIT etc.). For me, it will be a thriving scientific time to work in the USA and back in Munich as the Munich R&D capital encompasses: Applied Science (i.e., 4 Institutes Fraunhofer Gesellschaft); Fundamental research (i.e., 12 Max-Planck Institutes); Aerospace & IT (i.e., 8 DLR Institutes including a new major one in Robotics; Health and Environment (i.e., 23 Helmholtz Center Institutes); Corporate R&D (about 20500 employees); IT infrastructure (i.e., Leibniz Supercomputing Centre); IT services for more than 100 000 university customers; and Competence Center for Networks (e.g., GÉANT2, X-WIN, etc.).

The excellent quality of life in Munich, its dense and very dynamic industrial base and the excellent airport and train connections will support my mobility plans (professional duties as well as personal journeys) so that I will in a best position. The dominant scientific language of the laboratory is English, including with administrative staff that can make the link to the external administrations (and with the support of TUM Dual Career office). The TUM has also strong life-long learning training offers (technology transfer entrepreneurship, business acumen). I am convinced that this extraordinary environment will be beneficial to strengthen my knowledge, to reinforce my collaboration network, and will allow me to experience the excitement of working in a new country.

## B5.6 Impact of the proposed outreach activities

In the US I will contribute to outreach activities by PLEASE DEJAN COMPLETE

In Year 3 we will plan a public demonstration with the results of my project at the Deutsches Museum. The Munich based world-wide renowned Museum, which is the right place to show new robotic results to a wide international public, from young to seniors. The demonstration could take place in the “Center for new technologies”. The demonstration event - three days long -, will show final project results by month thirty-five. The CoTeSys and IASG teams will support this event.

1. http://www.in.tum.de/fuer-studieninteressierte/master-studiengaenge/robotics-cognition-intelligence.html [↑](#footnote-ref-1)
2. http://www.ikom.tum.de/?language=en [↑](#footnote-ref-2)