
Final Project Report

AC21 project

Preparation of a Trinational Joint Master Applied Computer Science

March 2017

On 07.03.2017, the AC21 Steering committee decided to fund the project of „Preparation of a Trinational Joint Master Applied Computer Science“ by the applicant,

1. **Prof. Christian Schindelhauer**, Faculty of Engineering, Institute of Computer Science, University of Freiburg in cooperation with
2. **Prof. Frank Neumann**, School of Computer Science, University of Adelaide, Australia; and
3. **Prof. Yannick Hoarau**, Faculty of Physics and Engineering, University of Strasbourg, France.

The goal of this project is to reach all necessary decisions on the faculty, university and (if necessary) state level to facilitate a timely start.

This project was initiated by **Prof. Bernd Fischer** in his function as an Adjunct Associate Professor of the School of Electrical and Electronic Engineering, University of Adelaide.

For a timely start the partners initiated a kick-off meeting, which took place the next month.

April 2017

On 21.04.2017 the **Kickoff-Meeting** was held in the multimedia conference room of the University of Freiburg, in the office of Prof. Dr. Schindelhauer with the following participants

1. Prof. **Yannick Hoarau**, University of Strasbourg
2. Prof. **Jörn Pütz**, Deputy Vice-President for Franco-German Relations, Direction des Relations Internationales/Direction de la Recherche, Faculté des Sciences de la Vie, University of Strasbourg
3. Prof. **Bernd Fischer**, University of Adelaide, connected via Skype video conference
4. **Susanne Raneskold**, Adelaide, International Development & Outreach, University of Adelaide, connected via Skype video conference
5. Prof. **Christian Schindelhauer**, University of Freiburg
6. **Kathrin Jehle**, International Office/Strategy Team, University of Freiburg
7. **Fabian Schillinger**, scientific staff of Prof. Schindelhauer
8. **Kerstin Pfeiffer**, secretary of Prof. Schindelhauer

The objective of the kickoff meeting was to organize and coordinate the common activities of the partners.

Despite minor technical problems caused by the video conference and the different time zones, the meeting was extremely productive. We identified some problems of the future programs and all partners were committed to solve possible problems.

The **results of the kickoff meeting** were the following:

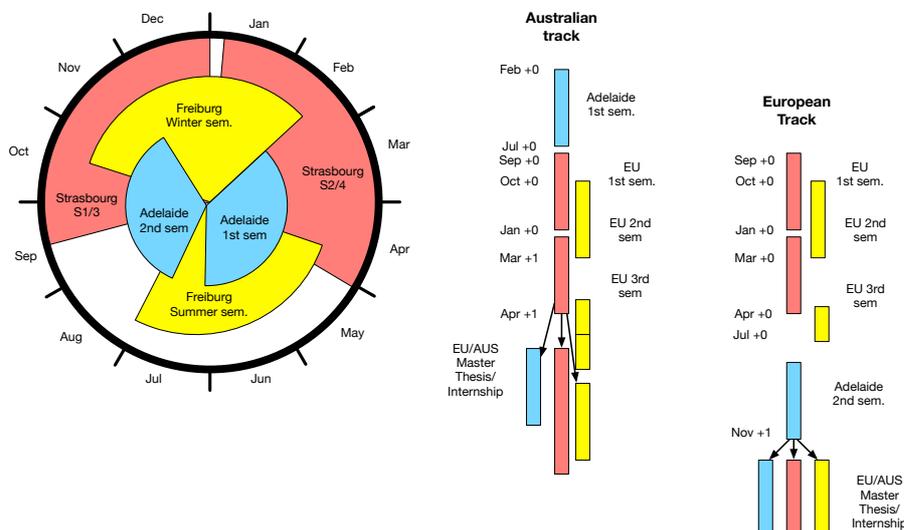
Admission of students: All three partners are in charge of selecting and admitting students. There is an upper limit to be determined later, which is determined by the restricted number of lab places in Strasbourg.

Degree: The students shall receive a common degree of „Master of Computer Science“ of the University of Freiburg and the University of Adelaide. There are some obstacles on the French side, which have to be resolved. The studies will be accredited. The accreditation process may start parallel with the first courses.

Mobility: Freiburg and Strasbourg are seen as one site, since they are partners within the EUCOR campus. So, accommodation may take place on the French site and mobility within the EUCOR campus is funded.

Within the course we plan three phases, where in the first phase the students start in Europe or Australia for one year, and switch in the second phase. The final phase of master thesis takes place in the place of choice.

Timing: The different teaching periods of the partners periods have been identified most obvious obstacle for this trinational master program. In Freiburg it is from October to February and from April to July; in Strasbourg from September to January, from January to May; and in Adelaide from February to June and from August to November. However, with the experience of Jörn Pütz and the help of all participants the following solution has been found.



According to the above figure there will be an Australian and European Track. Because of the extended online learning available in Freiburg, students will study three semesters during one year in Europe, where two semesters take place in Strasbourg plus the Winter semester in Freiburg. The Australian track starts with one (the first) semester in Adelaide, while the Freiburg track continues in Adelaide with one (the second) semester.

In both study tracks the students may choose to have the final semester as internship in Strasbourg (equivalent to an Australian or Freiburg master thesis) or as a master thesis in Freiburg or Adelaide.

Some **open problems** were identified to be addressed later. The study fees in Adelaide are much higher compared to the German and French partners. The study plan and the mobility need to be coordinated with the local partners. It was not clear whether an existing accreditation could be transferred to the planned project.

As further steps the general structure/study plan of the master program has to be discussed, the syllabus/module manual of all partners to be collected, examination regulations provided, a cooperation agreement to be signed, and the quotas to be determined. Furthermore, the problem of further funding was addressed, and Mrs. Jehle promised to give some input for this program. For the next meeting also representatives from the JSL (Department of Legal matters relating to studies and teaching, University of Freiburg) should be invited.

Finally, the next meeting has been scheduled for June 2017 in Strasbourg.

May 2017

After the meeting the summary of the meeting and study information from Strasbourg was shared among the partners.

June 2017

The next meeting took place at the Université Strasbourg from 11:30-16:00 on 12.06.2017 organized by Prof. Yannick Hoareau with the following participants

1. Prof. Bernd **Michael Fischer**, University of Adelaide
2. Prof. Dr. **Christian Schindelhauer**, University of Freiburg
3. **Birke Reichert**, JSL (Judiciary for Studies and Teaching), University of Freiburg
4. **Anne de Guilcher**, JSL, University of Freiburg
5. **Kathrin Jehle**, International Office / Strategy Team, University of Freiburg
6. Prof. **Yannick Hoarau**, University of Strasbourg
7. Prof. **Jörn Pütz**, Director of International Relation/Research Director, Faculty of Life Sciences, University of Strasbourg
8. **Sylvia Mesa**, International Relations Office, Université de Strasbourg

9. Prof. **Luc Hebrard**, Laboratoire des sciences de l'ingénieur, de l'informatique et de l'imagerie (ICube), University of Strasbourg

In this meeting the study program was concretized. From Adelaide the School of Electrical Engineering contributes with existing courses. Similar Freiburg contributes with the existing master program. In this meeting the problem of accreditation was discussed. The common opinion was that since each of the University has accredited study courses, the new study program could "inherit" this accreditation. However, since Freiburg is in the transitional state to obtain a system accreditation with internal accreditation programs, this plan was put into question. Some open questions were resolved regarding the different naming and procedure of the French internship compared to the master thesis in Australia or Germany.

While in the kickoff-meeting it was proposed that the summer semester in Freiburg in the European track is split into a presence and an online part, the idea came up, whether courses could be split up in Freiburg ending in Mid of June with a midterm exam. This was to be presented and discussed in Freiburg. Furthermore a draft International cooperation agreement for the implementation of a trinational study program was proposed.

In the same week, on 22.06.2017, Prof. Schindelhauer presented the plans of Trinational Study program **to the professors of Computer Science in Freiburg**. After a vivid discussion the following valuable input was collected. The name of the study program should not be called „Applied Computer Science“, but „Computer Engineering“, or „Computer Science“ (preferable the first one because of the Electrical Engineering partner in Adelaide). The split summer semester in Freiburg was strictly opposed by the colleagues. They recommend that the semester should be split as first half as standard lecture and the second half completed online. The exam will be written in Adelaide. Since, nearly all lectures are recorded in Freiburg, this is possible and allows students to continue the studies in Freiburg. Prof. Dr. Matthias Teschner was interested in the cooperation concerning the fluid dynamics, since he has done intensive research in this area, as well as a startup company concerned with the visualization of fluids in computer graphics. The colleagues have no objections regarding the choice of partners in Adelaide, whether it is Electrical Engineering or Computer Science. Yet, the latter is clearly preferred. Besides these points, the computer science department encourages the project to continue this problems, while some concerns about the daily commute from Straßbourg have been expressed.

The next day Louise O'Reilly, Marketing, Engagement and Recruitment Manager from the Faculty of Engineering, Computer and Mathematical Sciences, The University of Adelaide, visited Prof. Schindelhauer (23.06.2017), where he presented the current state of the program. She was relieved to hear that the number of students is bounded by the submission numbers in Adelaide. We discussed how we could motivate students to enroll for this program (in view of the different study costs).

July 2017

In **Mid of July**, **Mrs. Kathrin Jehle** from the International Office (IO) of the University of Freiburg contributed some valuable information requested at the last meeting:

Accommodation in Freiburg: The IO is very keen to provide housing in Freiburg for the students of the trinational Master. Since this project is an international study program / joint degree program, students can then easily apply for a room from the International Student Housing contingent. The IO is working to guarantee housing for all international students. At the moment, this is not always possible, especially in the pure student exchange.

Funding opportunities: With regard to funding opportunities on the part of the DAAD and other funding agencies, the IO provided an overview referring to individual and project funding. Although the DAAD also supports study programs between two or more partners. However, as soon as a German and French partner comes into play, funding for study programs will only be provided by German-French University grants.

August 2017

Prof. **Bernd Michael Fischer** has had intensive talks with the Department and Electrical Engineering. During this talks the Department of Computer Science wanted to take the lead from the Adelaide side. This organization change causes a slight hiccup in the organization, since they have not been involved in the talks so far. Therefore, a Skype meeting has been arranged between Prof. Katrina Falkner, Head of School, School of Computer Science, University of Adelaide and Prof. Schindelhauer for September.

September 2017

In preparation of the Skype meeting between Prof. **Katrina Falkner** and Prof. **Christian Schindelhauer**, **exemplary study plans** were created by Prof. Schindelhauer with placeholders for the Australian part.

The **Skype meeting took place on 08.09.2017**. In this meeting Prof. Schindelhauer reported the status quo of the project. Both partners discussed the chances and difficulties of the program. As results of this meeting the meeting in Adelaide was scheduled. As the name of the programmed the title „Trinational Master in Computer Science: Adelaide, Freiburg, Strasbourg“ was preferred over „Computer Engineering“, which is not acceptable from the Australian side, while „Applied Computer Science“ faces heavy opposition in Freiburg. Prof. Falkner promised to contribute courses for a study plan, where as a common ground concentrations around Robotics and Artificial Intelligence, Distributed Systems, Optimization and Computer Vision have been identified between Adelaide and Freiburg. Yet, the Strasbourg topic of fluid dynamics only fits to the Freiburg partner. Prof. Falkner proposed a one semester solution for each partner. Later on, Prof. Hoarau, strongly objected this idea via e-mail, clarifying that the first and second semester come as a unit. Furthermore, the accommodation in Strasbourg becomes more difficult. During the Skype meeting the student fee problem was again touched. Furthermore, a new problem arises in the realms of the Aus-

tralian VISA systems. Students staying in Australia for at least two years are eligible for staying in Australia. This would imply that students of the proposed trinational master program would lose this advantage.

Another meeting with Australian representatives took place in mid September in Freiburg. Prof. **Christian Schindelhauer** met with Ms. **Melinda Mae Dodd**, Pro Vice-Chancellor (International), University Adelaide. and Ms. **Susanne Raneskold**, Global Engagement Officer – Priority Partners, University of Adelaide, who were visiting the University. Prof. Schindelhauer presented the current plan of the trinational master program.

October 2017

After the meeting Prof. **Katrina Falkner** circulated the study plan for their current Masters of Computer Science program, which shows the rough outline of study per semester. Adelaide students normally take only Computer Science students as part of their program. It may be difficult to include Engineering courses such as fluid dynamics, in the first instance, because their students might not have the necessary preparation, but secondly, because it would not fit into the accreditation guidelines we have for our postgraduate programs with our accrediting body (Australian Computer Society). If the accreditation for this joint program is wanted, she would prefer them studying primarily Computer Science courses throughout the program.

November 2017

Prof. **Bernd Michael Fischer** has had several talks with Prof. **Bernd Michael Fischer** has had several talks with **Louise O'Reilly**, **Susanne Raneskold** and other colleagues in Adelaide, preparing the meeting. However, it turned out that neither he nor Prof. **Joern Pütz**, who has been the most experienced contributor to this project were able to come to the meeting. During these meeting some new ideas were discussed. There was some skepticism that the full trinational master program might not be possible from the beginning. In particular for the University of Adelaide, the low numbers of students would not justify the amount of work and organization required to for integrating such a program in the current curriculum, especially taking vast majority of international students into account. Also short student exchanges (several weeks) and intensive training were discussed, as well as a joint lecture that's given at all three universities.

From the German and French side these new ideas were seen as a setback from the original idea and were not welcomed.

December 2017

From 11.12. to 14.12. 2017 the final meeting took place at the University of Adelaide. From Europe Prof. Hoarau, University of Strasbourg and Prof. Schindelhauer, University of Freiburg, participated. The Australian partners have had arranged for a three day program. On the first day, a meeting with Susanne Raneskold was arranged, followed by a campus tour. Then, at 11am, the European delegates were welcomed by Professor Nancy Cromar, Pro Vice-Chancellor International. Then a work meeting with members of the faculty followed after lunch from 1pm to 5pm with the participants

1. Prof. **Katrina Falkner** (Dean of the School of Computer Science)
2. Prof. **Frank Neumann** (Algorithms and Optimization)
3. Prof. **Zonghan Xie**, Associate Dean (International), ECMS
4. Ms. **Justine Robins**, Regional Engagement and Participation, ECMS
5. Ms. **Susanne Ranekold**, Global Engagement Officer – Priority Partners, Division of Academic and Student Engagement, University of Adelaide,
6. Prof. **Christian Schindelhauer**, University of Freiburg
7. Prof. **Yannick Hoarau**, University of Strasbourg

Discussion points of this meeting were study fees and the whether a bilateral program would make more sense. The European partners made clear that Strasbourg and Freiburg participate in this program as one unit, combined by the EUCOR, the European Campus. As a result the program was elevated to the concept of an elite program, where only the best students could participate. The number of students were restricted at the start to 8 students from the Australian side and 4+4 students from the European side. In addition a wider student exchange program could place compared to the European Erasmus program. For the study fees the Australian partner showed some flexibility.

After the meeting Prof. Schindelhauer and Prof. Hoarau met with the **administration desk of the accommodation services** at the University of Adelaide, which showed impressive professionalism.

The next day, 12.12.2017, in the afternoon, a subset of this group continued the discussion (Prof. **Falkner**, Prof. **Neumann**, Prof. **Xie**, Ms. **Robins**, Prof. **Hoarau**, Prof. **Schindelhauer**). First, the open question whether a stay of at least one year in Adelaide to acquire a Master of Computer Science in Australia was resolved. This condition does not exist. For the student numbers the application starts in November in Adelaide with final numbers available in April. This could help as an input for the European student numbers. However, this might interfere with the VISA application process in Europe.

As a **drop out strategy** for the study program, in case the students fail courses, it was agreed, that the students continue in the study programs in their start university. All partners agreed on a joint degree and not three different ones. As a sample study program the partners agreed on computer vision and artificial intelligence was agreed upon. For the European students a welcoming party will be organized.

The **timeline for the program** was agreed that the program should be fixed for June 2018 in France and Germany such that the first application deadline for the Australian track would be September 2019. The Australian track then should start in February 2020, while the registration in Europe would be in September 2020.

On 14.12.2017 another meeting took place between Prof. **Christian Schindelhauer** and Assoc. Prof. **Anthony Dick**, responsible at the School of Computer Science in the University of Adelaide for the master studies program. After presenting the current state they worked out that viable spe-

cialization directions in the trinational master program would be Artificial Intelligence and Computer Vision.

January 2018

The results of this very successful meeting have been communicated to Prof. Fischer and Prof. Pütz as well as to Kathrin Jehle, the International Office in Freiburg.

February 2018 - March 2018

The partners continued to prepare the programs as discussed in the meetings.

April 2018

On 09.04.2018 the **International Day for Teaching and Learning** took place in Freiburg as a full day conference. From the consortium, Prof. **Hoarau**, Prof. **Joern Pütz**, and Prof. **Christian Schindelhauer** participated and presented the plans for the Trinational Study program the first time to a wider audience. During sessions with other international study programs important input was given. During the market of ideas, Prof. Schindelhauer contacted representatives of the Freiburg JSL regarding the current situation of the accreditation of international study programs and received the input that Freiburg is currently not able to accredit international study programs. From the Erasmus office of the University of Freiburg some valuable input was given concerning an Erasmus program relevant to the program. During the conference, Prof. Hoarau and Prof. Schindelhauer adjusted the local planning concretized the plans for the future.

Because of the delay caused by the change of Australian partners, the budgeted student's day has been postponed to the beginning of the next winter semester. In preparation for this event parts presentation tools have been already acquired using the AC12 budget.