

Seminar Report

Seminarbericht



The future of science and technology in Europe

23 June to 1 July 2018 in Strasbourg and Darmstadt



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Kurzbericht (deutsch)

Der vorliegende Bericht wurde aufgrund der Zusammenarbeit der Gruppen Darmstadt und Strasbourg auf Englisch verfasst. Die JEF Darmstadt stellt ihm einen deutschsprachigen Kurzbericht voran.

Erreichte Ziele

Das Hauptziel des Seminars bestand darin, Politik- und Sozialwissenschaften einerseits mit Ingenieurs- und Naturwissenschaften andererseits an einen Tisch zu bringen. Dies ist gelungen, da die Hälfte der Teilnehmer/innen aus den MINT-Fächern, die andere Hälfte aus Jura und Politikwissenschaften kamen. Dies führte zu angeregten Debatten aus verschiedenen Blickwinkeln auf dasselbe Thema. Ein Beispiel hierfür ist die Diskussion um ein sehr spezielles Thema: Designerbabys. Während der einen Gruppe die mit dem Thema verbundenen wissenschaftlichen Fragen wichtig waren, brachte die andere Gruppe vor allem ethische Fragen in die Diskussion ein.

Ein weiteres Ziel war es, Menschen aus Deutschland (genauer: Südhessen) und Frankreich (genauer: Alsace) zusammen zu bringen. Dies strich die unterschiedlichen Herangehensweisen an die Themen des Seminars in den jeweiligen nationalen Politiksphären und Öffentlichkeiten heraus und gab Hinweise darauf, wie die europäische Ebene in dieser Frage Lösungen finden könnte.

Als verschriftliches Ergebnis liegt eine Resolution zum Thema Künstliche Intelligenz und Automatisierung vor. Die Teilnehmer/innen haben diese zusammen entwickelt und beschlossen und wir freuen uns, ihnen diesen für politische Entscheidungen wichtigen Prozess näher gebracht zu haben.

Workshop-Übersicht

Workshop "Space Exploration" / Besuche bei ESOC und EUMETSAT

Im ersten Workshop (in Strasbourg) wurden die Themen Erdbeobachtung und Raumforschung diskutiert. In einem Vortrag wurde zunächst die Funktionsweise von Erdbeobachtungssatelliten und die Nutzung ihrer Daten (zivil/militärisch sowie kommerziell/nicht-kommerziell) diskutiert. Ergebnis der Gruppendiskussion war, dass sich viele nicht über die vielfältigen Nutzungsmöglichkeiten dieser Daten bewusst waren. So ist es beispielsweise möglich, mit Erdbeobachtungssatelliten Daten über den Klimawandel zu sammeln oder Auswirkungen eines Erdbebens zu untersuchen, aber auch militärische Einrichtungen oder Waffensysteme zu zählen. Im zweiten Teil wurde auf die Gefahren von Asteroiden eingegangen. Dieses Thema wurde beim Besuch des ESOC in Darmstadt vertieft. Es wurden erdhistorische und aktuelle Vergleiche vorgestellt. So entspräche die freigesetzte Energie schon eines kleinen Asteroiden

schnell der einer Vielzahl von Atombomben. Während es nicht möglich scheint, Asteroiden zu zerstören, werden Techniken diskutiert und erprobt, wie man sie von einem Kollisionskurs mit der Erde abbringen kann.

Ergänzend zum Workshop in Strasbourg besuchten die Teilnehmer/innen das European Space Operations Centre (ESOC) der ESA und anschließend die europäische Wetterdatenorganisation EUMETSAT in Darmstadt.

Während der thematischen Einführung in die Arbeit der ESA und der anschließenden Führung durch Kontrollzentrum, Missionsüberwachung, zu technischen Missionsmodellen und der kleinen Abteilung, die sich mit der Überwachung von Weltraumschrott befasst, entspann sich eine angeregte Diskussion über verschiedenste Themen. Interessanterweise wurde offenbar vor der Gründung des ESOC in Darmstadt auch Strasbourg als ein möglicher Standort diskutiert.

Am Ende der Diskussion zu den Auswirkungen von achtlos im Orbit gelassenen alten oder aktiv zerstörten Satelliten stand die Erkenntnis, dass sich Dinge im Weltraum äußerst unintuitiv verhalten. Den Abschluss bildete die Erkenntnis, dass nicht einmal die größte menschengebaute Bombe einen Asteroiden zerstören könnte.

Bei der anschließenden Führung durch EUMETSAT wurde die Arbeit der Wetterbeobachtung, die Bereitstellung der gewonnenen Daten und deren Nutzung diskutiert. Anhand der realitätsnahen Wettersatelliten-Modelle (oft in Originalgröße) konnten die Teilnehmer/innen einen lebendigen Eindruck über historische und aktuelle Erdbeobachtungsmissionen gewinnen.

Workshop und Vortrag "Bioethics"

Im zweiten Workshop wurde zunächst das Begriffsfeld aus Ethik, Moral und Bioethik erarbeitet. Dies ist wichtig, um eine sachgerechte Diskussion führen zu können. In diesem Zusammenhang stellte sich heraus, wie schwierig dieses Thema für eine politische Diskussion ist.

Allen Teilnehmer/innen wurden vor Beginn des Seminars Presse- und Fachartikel zu zwei Themen bereitgestellt. Nachdem sie ein Erklärvideo zum wissenschaftlichen Stand der Bioethik gesehen hatten, wurden sie in zwei Gruppen aufgeteilt: eine, die sich mit Leihmüttern beschäftigen sollte, eine zweite die sich mit sogenannten Designerbabys befasste.

Beide Themen sind hochkontrovers und es existiert in Europa keine einheitliche Rechtslage. Schnell führte die Diskussion zum Thema Gene Editing, also der Möglichkeit, Genome mit neuen Methoden wie CRISPR zu bearbeiten.

Zum Abschluss in Strasbourg präsentierten die Gruppen sich gegenseitig ihre Erkenntnisse.

Der Workshop wurde in Darmstadt fortgesetzt. Hier wurde die Rechtslage in verschiedenen EU-Mitgliedsstaaten diskutiert (beispielhaft: Deutschland, Griechenland, die Niederlande und Rumänien), da es keine europäische Gesetzgebung zum Thema gibt. Tatsächlich erlauben die meisten Mitgliedsstaaten eine "altruistische" Leihmutterschaft, bei der die der Leihmutter entstehenden Kosten beglichen werden, sich jedoch kein Gewinn ergeben darf (im Gegensatz zu einer "kommerziellen" Leihmutterschaft). Im Verlauf der Diskussion ergab sich, dass es interessant gewesen wäre, ein Land zu untersuchen, das eine Gewinnabsicht nicht verbietet und welche Konsequenzen sich dort daraus ergeben würden. Dies konnte jedoch im Rahmen des Workshops nicht abschließend verhandelt werden.

Im Anschluss präsentierte Prof. Joern Pütz (Molekularbiologe und Vizepräsident von EUCOR – The European Campus) das Thema Gene Editing und Bioethik. In einem Stuhlkreis (anstatt Frontalvortrag) eröffnete Prof. Pütz die Diskussion mit einer Einführung in den Forschungsstand des Gene Editing in Frankreich und Deutschland. Der Biologiestudent unter den Teilnehmer/innen beklagte, dass sein Feld in der Öffentlichkeit zwar als Wissenschaft respektiert werde, es aber oft pauschal als zu gefährlich gesehen oder mit einem Gottkomplex in Verbindung gebracht werde. Eine interessante Beobachtung war die unterschiedliche Herangehensweise an Forschung in Deutschland und Frankreich: In Deutschland gelte als guter Forscher, wer seine Forschung schlüssig erklären könne. In Frankreich hingegen werde kolportiert, dass jemand, der seine Forschung erklären könne, schlicht an zu einfachen Themen arbeite.

Den Abschluss bildete die Arbeit an einem Szenario für Europa im Jahre 2050. Unter der Annahme, dass Gentechnik allgemein verfügbar und erprobt sei, fragten sich die Teilnehmer/innen, wie die Gesellschaft dann aussehen würde, wo die Grenze zu ziehen sei zwischen dem gesundheitlichen Gewinn (Ausrottung von Erbkrankheiten) und den sozialen Fragen (Eugenik, Abhängigkeit von sozialer Schicht und Einkommen, kurzum der Frage nach einer neuen Genetischen Ungleichheit).

Workshop und Resolution "Artificial Intelligence"

Nach einem kurzen Workshop, in dem der Begriff der künstlichen Intelligenz definiert wurde und die Teilnehmer/innen sich anhand von Presseartikeln zum Thema Fragen ausdenken konnten, hielt der Wissenschaftler Prof. Giancarlo Frosio vom CEIPI (Centre for International Intellectual Property Studies, Université de Strasbourg) einen Vortrag über Gesetzgebungsfragen zur künstlichen Intelligenz.

Eine große offene Frage ist dabei die der Haftung. Wenn beispielsweise autonome KI-Systeme Fehler machen und Schäden verursachen, wer haftet dafür? In unserem aktuellen Rechtsverständnis, das sich um Menschen dreht, müssen Menschen für die Schäden ihres Verhaltens einstehen. Wer haftet bei Maschinen? Der Programmierer

oder der Produktionsleiter? Eine weitere interessante Frage ist die der Urheberschaft, wenn KI-Systeme kreative Inhalte produzieren.

Die diskutierten Fragen des Workshops wurden zum Abschluss in einer dreistündigen Sitzung in eine Resolution gefasst. Diese wird beim Bundeskongress der Jungen Europäischen Föderalisten, 13.-15. Oktober 2018 in Berlin und, sofern angenommen, beim ersten Federal Committee der JEF Europe 2019 zum Beschluss vorgelegt.

Full Report (english)

Accomplished goals

The main goal reached was to get together political and social sciences with natural sciences. Indeed, half the participants were from biology or engineer studies, the other were from Law or political sciences. Thanks to this fact, the discussions often became debates between the two points of view, which was exactly what was aimed. A very specific example is with one of the theme talked during the seminar: Designer babies. While students from sciences saw in this the progress that still could be done, students from Law and political sciences saw the ethical questions behind this subject.

Another goal was to mix together people from Germany and France to see what differences might exist between them concerning the subjects. Comparisons about how those two countries handle those questions could at time be discussed and led to think how the European level would be more efficient in this regard.

Finally, we were able to create a resolution on artificial intelligence. We are proud to have brought people from natural sciences to have taken part and made them discover how it is done.

Feedback on the development

Saturday, June 23th

Welcome picnic at Esplanade, in Strasbourg

Since it was summer, we decided to welcome the participants in the gardens of the University of Strasbourg with a picnic, made by volunteers. We also did Ice breaking games just before eating so participants could get to know each other before being able to talk with each other during lunch.

Workshop on Space exploration

Leaving the picnic, we went to the amphitheater of the Collège Doctoral Européen in order to attend the first workshop of the seminar. The workshop began with a presentation of the association by the vice-president of Jeunes européens – Strasbourg and the objectives by the project manager.



Afterward, the volunteer who was in charge of the workshop started by a study of pictures taken by satellites. The goal was to show how does a satellite work and why do we build satellites. Indeed, there is as much scientific interest as political ones as they became very important for nowadays way of life. Programs are led for either military or pacifist purpose since it's possible to see many things from space. For example, it is possible to detect some weapons, to evaluate how much plankton there is in some areas, to see the consequences of an earthquake, etc.

Then, we proceeded to study the asteroids. This part was shorter than the first one who brought many questions but it was still interesting, and something that would be talked the following weekend in Darmstadt. The danger they represent is real, as even small ones can provoke big causalities like the one who landed in Tcheliabinsk. But, if it's not possible, nowadays, to destroy an asteroid that would be big enough to destroy the Earth, it is possible to make the asteroid change its trajectory. Several techniques exist, and were presented, but they need a lot of time. By consequence, what is mostly needed are tools that can detect threats soon enough to act and should be done on a global scale.

Visit of Strasbourg

The German participants were able to visit Strasbourg, its historical center in particular, while French, who were mostly from Strasbourg, joined us for dinner at Les Afflamés in order to eat tartes flambées.

Sunday, June 24th

Workshop on bioethics

Following the workshop on space exploration, bioethics were studied. The first phase of it was to define what are bioethics, the morale, and ethics. Even if it sounds strange to begin with it, it is actually important to be able to differentiate those three words in order to be able to work on the same basis. Moreover, it also allowed us to show how difficult this theme is as it is more a political subject than a scientific one but needs to be addressed by scientists too.

Then an explicative video was shown in order to study at the same time the evolution of



bioethics, the scientific progress in gene-editing and what are the actual tools available in this particular field.

Afterward, we divided the participants in two groups. Each group has one theme, part of bioethics, to study more in-depth thanks to articles that we selected beforehand. The two selected themes were: Surrogate mothers and designer babies. Both themes are highly debated in Europe and states members don't have the same legislation nor the same position on the subject. Also, those themes allowed to talk about gene-editing and the questions around human body, including the ethical problems brought by the use of human body for profit.

The participants had to ask themselves: who benefit from this? What reactions? What impacts on society? Then, they would fill a board to gather their ideas before presenting it to the others who didn't study the subject.

Workshop on artificial intelligence

After bioethics, the third and last theme is studied: artificial intelligence. This time, a quick presentation of AI is made, as to present what it is and what it is not. This first approach allowed the participants to discussed about this and start their thinking from the same definition. Articles are also given and read in groups before the questions given for bioethics were asked and they had to fill another board.

Lunch

Sandwiches were bought and drinks were brought by volunteers. Since it was a sunny days, we continued discussing in the garden of Lieu d'Europe.

Conference on AI

We had the pleasure to have Professor Giancarlo Frosio, who is part of the CEIPI, in order to talk about the legislative part of Artificial intelligence. The participants could asked him questions while he was presenting the multiples aspects and troubles that robots might bring in the law field.

Indeed, one major blind-spot is the question of the Liability. If an autonomous artificial intelligence make a mistake that provoked damages, who is responsible for this? Our actual system is centered on humans



so a human is to be held responsible. If a robot can't be held responsible of its mistake, the question is: is the programmer responsible? The person who led the factory that produced it? Many questions that don't have answers yet but should have if we plan to continue developing artificial intelligence. Also, questions about copyright are to be asked as creative robots are also being developed and are now able to reproduce some art style.

Friday, June 29th

Welcoming of the participants

The participants are welcomed in Darmstadt with a Lunch at a café in the city center.

ESOC visit

In order to bring back the theoretical input brought the first weekend in Strasbourg, the second part of the seminar began with a visit at ESOC, the European spatial operation center. ESOC is part of ESA, the European Space Agency, and is where the satellites are piloted. We also learned that they debated whereas to build it in Strasbourg or in Darmstadt, which was funny enough considering JEF Darmstadt and Jeunes européens - Strasbourg worked together for this seminar.

The tour allowed us to discover some rooms used for satellites launch, Earth observation, and spatial exploration as the satellites that are sent far from Earth or watching other spatial entities. The guide of ESOC was especially proud of their Rosetta mission and explained us how the preparations were made and how they had to deal with unexpected events. For example, Rosetta was supposed to launch on a different asteroid but the spatial probe was not ready soon enough so they had to choose another one. We were also shown the prototype of the probe that had to support all accidents that could happen.

After this, we had a second guide who was more specialized in the matter of spatial debris that are actually a huge trouble of space exploration. Indeed, those debris, with their speed, can damage and even destroy operational satellites. Also, with the ideas of some enterprises to send low-life satellite will probably worsen the problem. The specialist who guided us told us that space should be preserved so future generations can continue exploring it, or just study it.

Finally, we discussed about asteroids, coming back to a theme of the workshop, and he confirmed what was learned and added further details about the technical side and what would be required if we wanted to destroy an asteroid. Even the strongest nuclear bomb known actual, the Tsar Bomb, would not be sufficient to really damage a massive one.

EUMETSAT visit

In order to continue in the subject of space exploration, we went to EUMETSAT so we could have more information about meteorological satellites. The first thing we noted is that EUMETSAT is less strict about security, as we were forbidden to take pictures in ESOC and we had to pass through security control. The guide first started with the presentation of Meteosat First Generation (MFG), a stationary satellite. He showed and explained us the different parts of it and how it works once in space. Afterward, we entered EUMETSAT building to have a presentation of the institution itself and what types of satellites they develop and used for weather study. Like ESOC, they have rooms where they receive data from their satellites but they study them instead of sending it to partners. The visit ended with a photography in their garden.



Saturday, June 30th

Workshop on the legal field of artificial intelligence

The workshop started with ice breaking games in order to allow the new participants, who couldn't take part in Strasbourg, to bond with the others. It also allowed them to renew a dynamic of group and get to work more easily. The games done, the workshop could begin with the study of a resolution of the European parliament on the subject of artificial intelligence. Point by point, they could understand how such a political and legal text was made and what were the ideas behind this. The workshop being led by a volunteer who was student in law, they could have more insight about why the resolution was written in such a way or any other questions they could ask themselves. Of course, the animator was not an expert so there were some blind spots but the overall went smoothly.

Workshop on the creation of a scenario about Europe in 2050 in the field of artificial intelligence

After working on artificial intelligence field for 2 weekends and after the discussions with an expert, the participants were ready to try imagining what the European societies would look like in 2050. The idea was for them to ask themselves: what are the possible breakthrough innovations that are going to have major impact on the way of life? They had to imagine the possible issues, the possible political decisions made, the positive impact as well. All of this in order to create a framework of how the future would look like.



However, as the discussions went on and the different dimensions were discussed, a massive debate occurred at the question of "robot rights". Some participants thought that it was fair to give robots rights as they would be as clever as us, even more. To them, it was a good thing. However, others were against it and saw this as a negative effect. Indeed, why should we give rights to non-living things when animals didn't have them? Why imprisoned people for destroying a robots when people could kill animals without troubles? The debate mostly went around if we should give rights to beings that are created by human beings while not giving the same to other living beings. It was a very interesting ethical debate that sadly had to be cut by lack of time, since this could be the subject of a whole seminar.

Workshop on the legal field of bioethics

After we were done with artificial intelligence, we went on with bioethics. This time, we didn't study a European text as the European Union didn't make any text on the subject of designer babies or surrogacy, letting the state members do as they see fit and the European court evaluate if something had to be changed. Instead, we study different member states legal framework on surrogacy: Netherland, Greece, Romania and Germany. We also compared with India whose legal framework allow commercial surrogacy. Indeed, as most European countries allow altruistic surrogacy, meaning the surrogate mother is reimbursed the fees provoked by the pregnancy but not a lot more, but forbid the commercial one, we thought it was interesting to also study a country where it is allowed and what are the consequences.

Lunch

After so much brainstorming and studies, well deserved pizza were brought in the room. The participants could also go outside to take some fresh air. In the meantime, the expert for the conference on bioethics, Professor Joern Pütz, arrived and started already discussing with the participants and organizers alike.

Conference on bioethics

In order to talk about gene-editing and bioethics, we had the honor to welcome professor Joern Pütz, vice-president of EUCOR and professor of molecular biology. Sit in a circle to allow a feeling of debate café, the participants could exchange freely about the subject. Professor Pütz initiated the discussions with the state of research in France and Germany and compared how the two country treated sciences differently. Then, especially the PhD student on biology, started discussing how their own studies were perceived from other people. While they were often respected, their domain of study was often seen as too dangerous and that they shouldn't "play god". A sort of consensus was reached that we should make aware of scientific researches people outside of the scientific fields. Indeed, there is some fears that shouldn't exist as the researchers are not even looking for that.

However, with this consensus rose another question of the difference between France and Germany. Indeed, in Germany, a good researcher is someone who can explain what he studies. In France, it's the contrary since being able to explain what you study



means it's too simple. This difference is explained by a difference of approach. French scientists are more in the abstract field than in the practical field so it's more difficult to understand without scientific backgrounds.

Workshop on creation of a scenario on bioethics

Following the conference, a workshop on creating scenario about Europe in 2050 was held. Despite being tired, the participants continued thinking about how bioethics would

evolve in the next decades and what would the society look like. Most ideas were about designer babies and the questions about gene-editing. Thus, one striking idea is that many participants thought that it would be nice to indeed modify the genes of a future baby so he or she would be sure not to have some genetics sickness. However, a question was also asked: what is the border that we should not cross? Should we even open the way to such researches? Indeed, obviously, gene-editing is expensive and the use of it will most probably be only for wealthy people. The question of a possible inequality in genes is thus asked.

Workshop on creating a resolution

Before ending the day, a few words were said about a resolution draft creating by a volunteer. They were discussions about the wording, the different points of it, if they had other points. Everything was written so they could be worked again for the next day, where the majority of the working would be done.

Sunday, July 1st

Workshop on creating a resolution

The final workshop of the seminar and the most foreign to Scientifcs. In order to let them express freely, the work from Saturday was printed then put in several points of the room so the participants could circulate and think again about the resolution. They also had stickers to indicate if they wanted to remove, modify or add a point. Both artificial intelligence and bioethics were presented despite artificial intelligence being the only one worked on the day before. Many discussions were held between participants and organizers, thinking about all the points discussed during the seminar. After one hour, everyone sat around the resolution on artificial intelligence to discuss the proposals of everyone. Many points were correcting some grammar mistakes, others question the necessity of such point and so on. After two hours, the resolution was complete and voted as the outcome of the seminar.

Appendix / Anhang

Balance Sheet / Abrechnung

The financial balance sheet of the seminar is provided to the sponsors in a separate document.

Die Projektabrechnung wird den Sponsoren in einem getrennten Dokument zur Verfügung gestellt.

Participants / Teilnehmer/innen

The sponsors are provided with a participants list and an attendance list if requested.

Den Sponsoren wird, sofern gewünscht, eine Teilnehmer- bzw. Anwesenheitsliste für ihre Unterlagen bereitgestellt.

Resolution

The resolution that was worked out at the end of the seminar is attached in a separate document.

Die am Ende des Seminars ausgearbeitete Resolution ist in einem separaten Dokument begefügt.