BAYLAT : Research in Bavaria Report

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1 Introduction

I am ████████████████, Brazilian, 26 years old, Electronic Engineering graduate and current master's student in the Electric Engineering program at Coppe/UFRJ, Rio de Janeiro, Brazil. In this report I would like to present the main topics which influenced my experience as a guest researcher at the Chair of Multimedia, Communications and Signal Processing (LMS) in Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU). In the following sections I will cover both personal and professional topics in order to give an overall view of my experience and my life during the last 5 months.

2 BAYLAT Application

I have first learned about BAYLAT scholarship due to an e-mail sent by the professor who supervised me in Bavaria to my home university supervisor. I was not aware of the program before and I believe very few people know about this opportunity in my home university.

The steps for applying for the scholarship were explained in detail in the call for applications. All my questions, when not already covered in the FAQ, were quickly answered by e-mail. The documents were sent by electronic and regular mail. I got a confirmation that my documents were received and was asked to wait while the applications were processed. The selection process took around 1 month and I was informed about the result via e-mail and on the application system.

3 Bavaria

Culture shock was a reality for me when moving from Rio de Janeiro (Brazil) to Erlangen (Germany). Adaption was not easy and I would like to highlight the differences which affected me the most as this might be useful for future applicants.

Erlangen is a safe, quiet and pleasant city to live in. It is small enough so you can go anywhere by bike, but you can still find basically anything you need

to have a comfortable life. The main downside I would point is the lack of social and nightlife activities, which can be supplied by a short trip (20 min by train) to Nuremberg.

Finding a place to live and rent prices are also viewed as a problem in Erlagen. Luckily, I did not experience such problem. I found a place to live in a student accommodation using Studentenwerk service. FAU International Office informed me about this service and assisted me in how to send an online application, which could be done from my home country.

The language was a great obstacle, maybe the biggest one for me. Although I had studied German for 1 year in Brazil and took an intensive course for 1 month after I arrived in Germany, I did not feel like I could communicate effectively. Speaking English in the university was not a problem at all, everyone had the ability and the will to do so. The problem was perceived in the daily life, when trying to make friends, buy things or ask for information on the streets, for example. Not only not everyone could speak English, the ones who were able to do it did not look very pleased in doing so. In general, I felt people acted in a less friendly manner after being asked to speak in English. However, if I tried to speak in (not very good) German they would reply in English. That was an impasse I had to handle anytime I would interact with local people.

Organization and punctuality are also major differences when comparing Germany to Brazil. People and services in Germany are in general organized and strict to a plan. The exception goes for the trains, they are always late. Traffic rules, deadlines and working hours are strictly respected and one should have that in mind when moving to the country. Nevertheless, one unexpected (at least for me) similarity between the two countries is the bureaucracy. Germans love papers as much as Brazilians do.

4 Host University

I am highly satisfied with the way I was received in Friedrich-Alexander-Universität. Right after receiving the scholarship confirmation, I was contacted by the Office for International Affairs of the university. From then on I received all information and support required for me to organize before moving to Germany.

FAU International Office has also organized a reception event for international students which took place a few days after I arrived in Erlangen. There, I received more information about visa application, registration in the university, health insurance requirements, among other actions expected from newcomers to the city. This event was of great help to my adaption. Not only I was provided with useful information, I also had the opportunity to meet several other students and start my local social circle.

During my first month in Erlangen I took an intensive German course held by the university Language Center. The course was optional but I should point that it is HIGHLY recommended for anyone who is not fluent in the language. I had a basic level (A1) of German when I arrived and the course was extremely helpful. I have learned a lot in a very short amount of time.

In addition to the International Office, I received support from my supervisor and two of his PhD researchers. They have contacted me before I moved to Germany and solved many of my questions. I would like to highlight the importance of this previous contact with my colleagues. It gave me confidence and made me feel safe about such a big change in my life.

As soon as I arrived in Erlangen and started to work in LMS Chair, I realized I had made the right decision. I was introduced to my working place and to my colleagues and everyone seemed to be concerned in making me feel comfortable and welcome. I was regularly invited to join student meetings where I could learn about my colleagues' work and where several research topics related to my work were discussed. Moreover, the atmosphere was extremely friendly. I always had the opportunity to interact with my colleagues, whether to talk about work or to just casually chat during lunch or coffee breaks. I am sure this receptive environment was of crucial importance for my performance at work.

5   Research Project

In Erlangen, I joined a research on the topic: "Multichannel NMF Algorithms for Ego-Noise Suppression in Autonomous Systems". I worked mainly with one colleague who had been working on the topic and guided me through the first steps. Nevertheless, discussion and exchange of ideas was always encouraged among all of my colleagues.

First, I was introduced to the required background. I worked on getting familiar with Non-negative Matrix Factorization (NMF) and possible algorithms to implement it [1, 4]. Moreover, I learned about ego-noise application and a strategy to suppress it using Multichannel NMF (MNMF) [2]. With that knowledge I was able to understand the problem which arises when implementing MNMF. A high computational load is required, leading to long processing times. A fast MNMF implementation was proposed in [3] as solution to this problem. The target of my research was to implement this fast algorithm for ego-noise suppression.

The following weeks were dedicated to studying the code previously developed by my colleagues in Matlab language. The code implemented a MNMF algorithm for ego-noise suppression, but presented the high computational load problem mentioned before. After getting familiar with the existing code, I started working on the fast implementation. The algorithm was implemented also in Matlab language and tested following a similar procedure as in [2].

The results were satisfactory. Fast MNMF implementation was able to suppress ego-noise without much performance loss and it was more than twice faster than the previous implementation. However, some convergence problems were introduced and that should be examined further. Results and comments were presented to my supervisor and colleagues in a short talk given by me at the very end of my stay.

The project was finished within the scheduled time and I am pleased with the results. I have received positive feedback about my work and I have continued

to work remotely with a colleague, as we would like to write a conference paper on these results.

6 Conclusion

Overall, I had a great experience with BAYLAT and Friedrich-Alexander-Universität and I would recommend the scholarship program to other students. However, I highly recommend having previous knowledge in German, although it is not a requirement. Moreover, I advise future applicants to seek contact with students/researchers from the intended city/university, as this might help preparing for the experience.

I have stayed in Bavaria for five months. Is is a rather short amount of time, but I have accumulated a great amount of knowledge and experiences which could have taken years for me to obtain. From a personal point of view, I have improved my German language skills, learned about other cultures and had multiple lessons on how to communicate with people completely different from me. Moreover, on the academic side, I had the opportunity to learn how research is done in a country known to excel at it. I worked with a group of people that is reference in its research field and I have learned a lot from them.

Lastly, I would like to thank BAYLAT for this opportunity and the BAYLAT staff for always being helpful. As feedback, I would suggest the program to put students who are awarded with the scholarship in contact, so they can trade information and support.

References

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