

DI Dr. Jennifer Simonjan

NANOSCALE SENSOR NETWORKS
NANOTECHNOLOGY IN SENSORS AND COMMUNICATIONS

FIELD REPORT

Research stay at the Georgia Institute of Technology
from 15 January 2020 until 2 August 2020.



Alpen-Adria-Universität Klagenfurt

Sup.: Univ.-Prof. Dr. Bernhard Rinner
Pervasive Computing Group
Institute of Networked and Embedded
Systems

Georgia Institute of Technology

Sup.: Univ.-Prof. Dr. Ian F. Akyildiz
Broadband Wireless Networking Lab
School of Electrical and Computer
Engineering

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1 Field report

1.1 General impression of the research stay

My research stay at the Georgia Institute of Technology (Georgia Tech) in Atlanta, US greatly improved my professional and personal skills. I am very grateful that I got the opportunity to spend about seven months at the Georgia Tech to collaborate with researchers from all over the world, to experience life at a prestigious American university and to promote my personal academic career.

1.2 Host institution and research lab

Georgia Tech is considered one of the best universities for engineering sciences and ranks among the top 20 universities in the US (Times Higher Education Ranking). In 2018, it was also ranked seventh best engineering school (U.S. News & World Report) and additionally, one of the first working examples of a synthetic nanoscale sensor was built by researchers at Georgia Tech in 1999.

During my exchange I worked under the supervision of Professor Ian F. Akyildiz. Professor Akyildiz' Broadband Wireless Networking Lab is an outstanding collaborator since it has been involved in research about wireless communication and sensor networks for more than 20 years. Furthermore, Professor Akyildiz is the most cited Professor in the field of "Wireless Sensor Networks" with an h-index > 120 and is thus one of the most renowned professors worldwide. In collaboration with him, I dedicated myself to the research topic of nanoscale sensor networks which focuses on advancing intelligent wireless sensor networks to work in a nanoscale setup.

Professor Akyildiz and his lab members provided a warm welcome and included me from the very first day. I had a great time collaborating with everybody and I felt very comfortable in the Broadband Wireless Networking lab. A special thanks goes to Professor Akyildiz for his hospitality, support and trust in me as a researcher.

Besides the technical aspects, Georgia Tech also offers quite a variety of recreational and leisure activities. My favorite place on campus (besides our lab) was the Campus Recreation Complex (CRC), which provides all kinds of sport facilities including an Olympic pool, a climbing wall, a gym and multiple courts for basketball, racquet ball and squash. I very much enjoyed my leisure time on campus and made many new friends.

1.3 Recommendations for future Marshall Plan fellows

I would highly recommend Georgia Tech to all prospective Marshall Plan students and fellows pursuing an engineering degree. The university itself is located in Atlanta, the capital of Georgia, and the campus is in the heart of Midtown, which

is the best neighborhood in Atlanta. The campus is beautiful and very spacious, with lots of options for dining, coffee break gatherings and recreational activities. Atlanta is a vibrant city which has been rapidly growing especially during the last years. The top attractions that I would recommend are the National Center for Civil and Human Rights, the Piedmont Park and the Aquarium. Finding a nice and affordable accommodation is quite difficult, since living costs in the US are very high. However, students will face this problem no matter where they go. For Georgia Tech, I can recommend the area of Home Park which is right next to the campus and offers definitely the cheapest accommodations (i.e., shared houses or apartments). I would in any case recommend to stay in a shared living in order to get in touch with students from all over the world and to ease building social interactions.

The final advice I have for future fellows is that they should make a real effort in finding a supervisor who is willing to devote substantial time in working with them, regardless of which institution they choose to visit. I believe that this is the most important factor for a successful research stay abroad. In my case, this paved my way towards a novel research topic, which will most likely shape my future academic career. I am sincerely grateful to the Marshall Plan Foundation for enabling me this experience.

1.4 Research stay in COVID-19 times

After about two months of my seven month stay, Coronavirus showed up, changing campus, research and personal life completely. The Georgia Tech took very good care of their students and staff by closing down early and providing a Coronavirus test site on campus. Unfortunately, most of my stay took thus place in home office. However, I want express particular gratitude to the Marshall Plan Foundation who was always very responsive and supporting in these insecure times. They let their students and fellows decide by themselves if they wanted to continue their stay abroad or return home and they supported everyone in his/her decision individually. As I decided to stay abroad, the Marshall Plan Foundation even allowed me to adapt my initial research plan to still be able to achieve it. Therefore, a very big *Thank You* to the Marshall Plan Foundation, you were a very important point of support for me.