

SHORT TERM SCIENTIFIC MISSION (STSM) SCIENTIFIC REPORT

This report is submitted for approval by the STSM applicant to the STSM coordinator

Action number: CA19102

STSM title: Sign Language Processing with the EASIER Project

STSM start and end date: 19-04-2021 to 16-07-2021

Grantee name: Amit Moryossef

PURPOSE OF THE STSM:

In this STSM I aimed to collaborate with researchers in the University of Zurich working on sign language processing and understanding. In particular, I intended to work with my host, Dr. Sarah Ebling, Dr. Annette Rios, and Dr. Mathias Müller in their lab at UZH. This collaboration includes presentations, novel research, and developing my professional network in academia both inside and outside the field of sign language research.

This collaboration is motivated by our shared interest in research and development of sign-language technologies to assist the Deaf and Hard-of-hearing communities, and a recent [research paper](#) we collaborated on to make sign language more accessible in video conferencing technologies.

DESCRIPTION OF WORK CARRIED OUT DURING THE STSMS

During my STSM I was introduced to the EASIER project, a large European collaboration for creating sign language translation systems for signed languages of Europe. From that introduction, I was given the freedom to choose a topic to work on, and so I have experimented with:

1. Caption alignment using keyword extraction
2. Drawing of signs based on transcribed SignWriting and illustrations
3. Motion capture from a webcam (sign language avatar animation)
4. The extraction of facial features in sign language, and their transcription in SignWriting
5. Non-autoregressive sign language production using SIRENs
6. Developing a sign language translation platform ([sign.mt](#)) to foster open source collaboration

Additionally, during my stay I was invited to give a talk at ETH Zurich, at the SIGTYP workshop, and at a sign language research network. These talks helped me expand my network, as well as learn different perspectives on sign language processing from people in various disciplines.

DESCRIPTION OF THE MAIN RESULTS OBTAINED

I feel like the main result obtain from this STSM is my own personal growth. The independence given to me, along with the support from my host, have contributed to me being more open to reaching out to people, for me to make more meticulous work, and have created a real work-life balance like I have never had before.

Additionally, academically, three of the projects mentioned above are still ongoing. Sign language animation is further developed to create more life-like characters for sign language production. Extraction of facial features has been integrated in a transcription system, and will be used as a key component for

full transcriptions down the line, and the development of the sign language translation platform is still ongoing, making works on sign language more accessible, and demonstratable.

FUTURE COLLABORATIONS (if applicable)

Despite the STSM officially ending, the lab at UZH and I are still collaborating on Non-autoregressive sign language production using SIRENs, as well as generally consulting when anything in the field comes up.

Given the chance, I will definitely visit them in person again, perhaps once COVID restrictions die down.