

## Internship Evaluation & Reporting

Thank you for taking the time to complete this form, this evaluation will be used to assess the student's participation in the internship program.

Supervisors, using the form below please evaluate the student who interned with your organization, institution, or business. You can fill out this form electronically or you can fill it manually but eventually it must be signed and stamped from the company's side.

Please note that part I & III should be completed by the intern, part II should be completed by the direct supervisor in the company.

### Part I. GENERAL INFORMATION – STUDENT'S INPUT

#### Student Info:

Student Name: Samer Sameh Helmy Ghaly GUC Student ID No.: 43-16142  
Faculty: MET Major: CSEN  
Student Mobile No.: +201200018081

#### Internship Info:

Company Name: German Research Center for Artificial Intelligence, DFKI GmbH  
Core Industry/Business: Artificial Intelligence Country: Germany  
Supervisor Name: Jilliam Maria Diaz Barros Supervisor Job Title: Researcher  
Supervisor Tel. No.: +49 631 20575-3650 Supervisor Mobile No.: \_\_\_\_\_  
Supervisor E-mail: jilliam\_maria.diaz\_barros@dfki.de Training Department(s): Augmented Vision  
Source of internships: (1) SCAD office (2) on my own ☒ Referrals from GUC TA/Dr. (4) Recruitment website (5) others:  
Work Place: ☒ Organization (2) Head Office (3) Branch (4) Factory (5) Site (6) Others:

### Part II. EVALUATION AND COMMENTS – DIRECT SUPERVISOR'S INPUT

Period of Internship (dd/mm/yyyy) (dd/mm/yyyy)  
From: 01 / 09 / 2021 To: 31 / 10 / 2021

Internship nature (Enrollment Status)

- ☐ Part time Please specify, no. of Days per week: \_\_\_\_\_ hours per day : \_\_\_\_\_  
☒ Full time Please specify, no. of Days per week: 5 hours per day : 8

**Company Stamp**  
Forschungszentrum  
für Künstliche Intelligenz GmbH  
Trippstadter Straße 122  
Postfach 2080  
D-67608 Kaiserslautern

**For SCAD internal use only**

Serial no.	SCAD Comment	Academic Reviewer Comment	Academic Reviewer Signature
			<input type="checkbox"/> Accepted <input type="checkbox"/> Rejected Reason of rejection:  Signature:

Please evaluate student's performance by marking the appropriate box:

For each of the following aspects, please mark the box in the rating scale that most closely corresponds to your evaluation of the profile of the student during the internship period. Please also feel free to offer comments and suggestions for changes and improvements in the space provided at the end of the form.

**1=Unsatisfactory      2=Below Average      3=Satisfactory      4=Above Average      5=Excellent**

	1	2	3	4	5	NA
<b>Skills &amp; Professional Attributes</b>						
Ability to adapt to change					X	
Analytical skills					X	
Collecting data/ research data skills				X		
Creativity				X		
Follow up skills						X
Interpersonal skills with peers, supervisors, and clients					X	
Problem solving					X	
Punctuality			X			
Reporting skills			X			
Responsibility and accountability				X		
Stress handling						X
Taking initiatives						X
Teamwork						X
Time management				X		
Other:						
<b>Technical Background</b>						
Technical Knowledge					X	
Compatibility of technical skills with the job					X	
Other:						
<b>Command of Languages</b>						
Arabic						X
English			X			
German						X
Other:						

1=Unsatisfactory      2=Below Average      3=Satisfactory      4=Above Average      5=Excellent

	1	2	3	4	5	NA
<b>Computer Programs &amp; Databases</b> Please use space below in specifying the program/software used during the internship and evaluate student's performance accordingly						
Deep learning				X		
Python					X	

<b>Overall Evaluation of Student's performance and profile</b>					
Unsatisfactory	Improvement needed	Meets expectations	Exceeds expectations	Exceptional	NA
		X			

**General Comments & Recommendations:** (kindly mention intern potentials, areas of further development or technical constraints encountered during the internship period)

Mr. Ghaly worked on an relatively new topic, he was able to cope with the novelty and apply his learning skills to his topic. He was able to build upon other works and even improve them. He managed to work with large datasets and use our compute clusters. Regarding areas to improve, he can further work on his presentation skills and improve his English language skills.

**Yes      No      Maybe**

Do you think similar candidates would fit in the Organization culture and qualify for job needs?

X      ☐      ☐

**Student Signature:**

*Samer*

**Date:**

24.05.2022

**Supervisor Signature:**

*i.A. [Signature]*

**Date:**

24.05.2022

Internship Report  
Samer Sameh Helmy Ghaly, 43-16142, MET

Internship Title:  
Sign Language Production using Deep learning

DFKI  
Supervised by:

Dr. Muhammad Jameel  
Jilliam Diaz Barros

**Internship Title:** Sign Language Production using Deep learning

**Company Name:** DFKI (German Research Center for Artificial Intelligence)

**Introduction:** The main purpose of the report is to describe my experience in the internship that was in Germany. I did my internship after my bachelor project in a research center (DFKI) and it was a very different amazing experience for me as I did not just get technical experience but also I met a lot of people and dealt with different cultures. The report will cover a brief about the research center (DFKI) then describe my main tasks in the internship (which will be pure technical tasks) and the evaluation of my experience in the internship as well as its influence in my future career plans, finally a summary to key conclusions derived from the internship experience.

**Company Description:** The German Research Center for Artificial Intelligence (German: Deutsches Forschungszentrum für Künstliche Intelligenz, DFKI) is one of the world's largest nonprofit contract research institutes for software technology based on artificial intelligence (AI) methods. DFKI was founded in 1988, and has facilities in the German cities of Kaiserslautern, Saarbrücken, Lübeck, Oldenburg, Osnabrück, Bremen, Darmstadt and Berlin. DFKI shareholders include Google, Microsoft, SAP and Daimler. The directors are Antonio Krüger (CEO) and Helmut Ditzer (CFO). DFKI conducts contract research in virtually all fields of modern AI, including image and pattern recognition, knowledge management, intelligent visualization and simulation, deduction and multi-agent systems, speech- and language technology, intelligent user interfaces, business informatics and robotics. DFKI led the national project Verbmobil, a project with the aim to translate spontaneous speech robustly and bidirectionally for German/English and German/Japanese.

**Internship Performed Tasks:** My main Task was to implement and improve the image reconstruction model in a sign language production project, in which we reconstruct the base image to perform certain poses. I used GAN to implement the model. Our baseline Architecture is from stoll et al paper. To optimize the baseline, we suggest the implementation of an additional loss function which is the perceptual loss, and adding new modules like depth map and the semantic segmentation map instead of key points or combinations between them.

Perceptual loss has a significant effect on the total appearance of the generated image, also in training speed. using depth map and the semantic segmentation map increase the quality of the hands. Moreover, The results show a significantly higher quality of the body and the hands respect the base model results.

Internship Phases:

- 1) Reading research papers.
- 2) Tuning Hyperparameters :
  - a) Learning rate
  - b) Updates during training step
  - c) Batch size
- 3) Add Depth and Segmentation map as pose input.
- 4) Generator and Discriminator Models modification:
  - a) Generator modification .
  - b) Discriminator modification.
- 5) Generator loss function modification .
- 6) Training on SynthSL dataset.

**Internship Evaluation:** I gained more than I can imagine in this internship, I learnt the basic of machine learning and deep learning as well as some advanced topics in deep learning like Convolution neural network (CNN) and Generative adversarial network (GAN), The internship also improved my critical thinking and problem solving skills, The internship definitely met my expectations, The internship gave me a great experience in a new field to me and this for sure increase my choices in my future career, and if I did not specialize in machine learning it still improved my way of thinking. The internship is about machine learning and machine learning is a big field of computer science so it is tightly related to my field of study as I used Databases , programming language(python), framework(pytorch,numpy, etc.)and a lot of Mathematics, (CSEN1022) Machine Learning (1577) and (DMET901) Computer Vision (571) are the most related academic courses related to the internship.

**Conclusion:** In conclusion my internship in DFKI was very fruitful and I learnt so much although before the internship I had no idea about machine and deep learning, I have achieved a huge improvement in the quality of the results of the base model. These optimizations made the generated image very realistic and close to the ground truth. The internship gave me an amazing clear picture of how working for a company looks like and with the help of my supervisors, the experience was perfect. In this report I explained the overview and objective of the project, the phases we had to walk through to finish it and my evaluation of the internship.



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Kaiserslautern, 24.05.2022

Dear Sir/Madame,

I would like to confirm that Mr. Samer Sameh Helmy Ghaly, born on 29.03.1999, worked under the supervision of Mrs. Jilliam Maria Diaz Barros, and Dr. Jameel Malik on his bachelor thesis from 01.06.2021 until 31.08.2021. Followed by a 2-month internship from 01.09.2021 until 31.10.2021.

He worked in the Augmented Vision Department at DFKI Kaiserslautern, Germany.

Best regards,

*Mohamed Selim*  
Deutsches Forschungszentrum  
für Künstliche Intelligenz GmbH  
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Postfach 2080  
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Mohamed Selim

**Deutsches Forschungszentrum für  
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Weitere Standorte und Betriebsstätten:  
Saarbrücken, Bremen, Osnabrück,  
Oldenburg, Berlin, Lübeck, St. Wendel

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**Geschäftsführung**  
Prof. Dr. Antonio Krüger (Vorsitzender)  
Helmut Ditzer

**Vorsitzender des Aufsichtsrats**  
Dr. Gabriël Clemens

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Amtsgericht Kaiserslautern HRB 2313  
USt-ID-Nummer DE 148 646 973  
Steuernummer 19/672/50006

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