

## Report on Research Project under the IDEA League Student Grant

Personal Information			
Full Name		Hande Eyisoğlu	
Field of study		Biomedical Engineering	
Degree pursued		Master degree	Current year of studies   2nd
Home university		TU Delft	
Sponsoring professor at home university	Name	Prof. Jie Zhou	
	Email	J.Zhou@tudelft.nl	

Information about the research stay			
Host university		ETH Zurich	
Research topic		3D Bioprinting of Graphene Oxide Composite Scaffold for Improving Scaffold Morphology	
Dates of research stay		From	01-08-2018   To   30-11-2018
Sponsoring professor at home university	Name	Prof. Ralph Müller	
	Email	ram@ethz.ch	

Summary of research project (200 words max.)
<p>The aim of this project was to improve the scaffold stability and thus scaffold printing with high shape fidelity, while keeping or even improving the hMSC/osteoblast cell viability and cell spreading. For this purpose, firstly we worked on 3D bioprinting of 0.8%alg scaffolds containing different amounts of GO. Then, work focused on implementation of the printing conditions (such as fiber diameter, pore size) for the fabrication of 3D bioprinted cell-laden bone defect scaffolds. Scaffold morphological analysis were performed to assess the printability and accuracy of 0.8%alg scaffolds containing GO. Meanwhile, ink biocompatibility test were also performed. The incorporation of graphene oxide proved to increase shape fidelity of the printed scaffolds by counteracting the shrinkage problem of the previous scaffolds. The cell viability seems to have increased for the graphene composite scaffolds compared to the no graphene oxide group as well. A defect model using these hydrogels were also designed and evaluated for the scaffold morphology where the graphene oxide-incorporated groups showed higher shape fidelity and lower shrinkage.</p>

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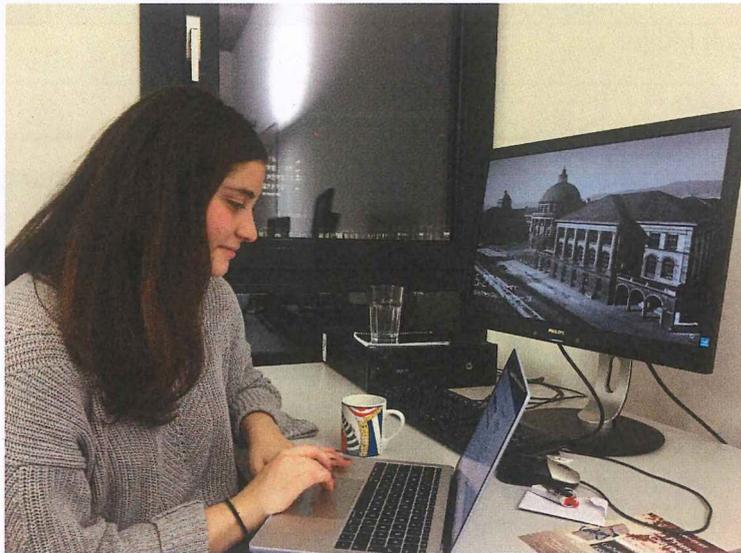
## Experience Report

*(Please tell us about your personal experience at the host university and give us an evaluation of the benefits of the research stay for the course of your studies)*

Here I was able to obtain invaluable experience regarding bioprinting and had access to an vitro lab which I would not have been able to elsewhere. The group was very welcoming and helpful to incoming students. I would not have been able to gain the experiences of cell culture or bioprinting in my host university which made this extremely beneficial for my studies. It was an opportunity to see how a research project is structured, planned and presented. My supervisors were helpful in answering any questions I might have or any guidance I might need. It was a great opportunity to combine what I learned theoretically on my first year of studies with lab experience.

## Picture

*(Please provide a picture of you at the host university)*



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Student

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Sending professor

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