

PROFESSIONAL INTERESTS

Machine/Deep Learning
Computer Vision
Numerical Optimization

PUBLICATIONS

Real-time Smoke Removal From Videos Using Deep Learning (Peer reviewed)

S. Bolkar, C. Wang, F. Cheikh, S. Yildirim *Deep Smoke Removal From Minimally Invasive Surgery Videos*, in Proceedings of the IEEE International Conference on Image Processing (ICIP), 2018.

Image Segmentation and 3d Reconstruction

S. Bolkar, *Soft Segmentation of Viral Labeled Neurons*, MSc Thesis, KU Leuven (Neuro-electronics Flanders) and Norwegian University of Science and Technology, 2018.

Spectral Imaging Literature Review

S. Bolkar & O. Ozcelik, *Bio-Spectral Imaging*, Research Report, 2015

HONORS & AWARDS

<i>Neuro-electronics Research Flanders MSc Thesis Scholarship</i>	Spring 2018
<i>EU Mundus Master Joint Degree Full Scholarship</i>	2016 - 2018
<i>Best Research Poster Award in METU Undergraduate Research Fair</i>	May 2015
<i>Erasmus Summer Internship Grant</i>	Summer 2014
<i>Scholarship of METU Alumni Association</i>	2014 - 2016
<i>Scholarship of Prime Ministry of Turkey</i>	2010 - 2015
<i>Ranked at the top 0.5% in National University Entrance Examination</i>	2010

EXPERIENCE

Delft University of Technology

Delft, Netherlands

PhD Researcher

September 2018 -

3d Point Cloud Registration. Goal of the project is to increase the spatial resolution of super-resolution microscopy by registering under-labeled 3d point sets. I developed an EM-based joint registration framework that resulted in better reconstruction than the state-of-the-art even for 70% incomplete data.

Neuro-electronics Research Flanders, KU Leuven & IMEC

Leuven, Belgium

MSc Thesis Researcher

January - July 2018

Reconstruction of Viral Labeled Neurons. The project aims to design automated pipeline for separation and reconstruction individual neurons in 3d from confocal microscopy image stacks. I developed a soft-segmentation algorithm that is able to handle occluded neurites by computing per-pixel transparency for each class by L-BFGS-B based optimization. Advisor: Karl Farrow

Gestalt-ReVision, KU Leuven

Leuven, Belgium

Visiting Scholar

July - August 2017

Image Memorability. The project seeks to understand memorability of images from perceptual grouping point of view by using deep networks. I implemented deep learning based analysis methods. Advisor: Johan Wagemans

Mikro-Tasarm Electronics Inc.

Ankara, Turkey

IC Design Intern

August - September 2015

Digital Circuit Design. The project is on developing FPGA prototypes of a digital oscilloscope and a tunable clock management circuit by using Verilog.

KocSistem Inc.*Computer Networking Intern*

Ankara, Turkey

June - August 2015

Network Design. The project aims to design and simulate network architecture of a company with multiple branches on hardware and software.

Technical University of Denmark*Neuroengineering Intern*

Lyngby, Denmark

June - September 2014

Neurorehabilitation. It is a summer research project that targets development of feature extraction algorithms from EEG signals. I assisted development of a brain computer interface based computer game for rehabilitation of children with ADHD. Advisor: Sadasivan Puthusserypady

RELEVANT PROJECTS**Photorealistic cloth rendering**

Fall 2017

A procedural processing pipeline for reverse engineering of fabric structure from a single image by utilizing both spatial and frequency domain features is developed

Autoencoder networks for spectral reflectance estimation

Fall 2017

An autoencoder neural network for estimation of diffuse reflectance from camera tristimulus values is designed

3D scene reconstruction using RGB-D sensors

Spring 2017

A practical course project where volumetric reconstruction using Kinect sensor is implemented

Autonomous robot playing ping pong game

Spring 2016

Bachelors graduation project that aims to create an autonomous robot playing ping pong game

TEACHING

Signals and Systems, TU Delft

Fall 2018

Medical Imaging and Image Processing, TU Delft

Fall 2018

EDUCATION**Norwegian University of Science and Technology**

Gjovik, Norway

*MSc in Applied Computer Science, Joint Degree with University of Lyon & University of Granada**2016 - 2018**Specialization in Computer Vision***Middle East Technical University**

Ankara, Turkey

*BSc in Electrical and Electronics Engineering**2012 - 2016***SKILLS**

Language: Turkish (native), English (IELTS-7.5/9), French (ele.), Bokmal (ele.)

Programming: Python (adv.), Matlab (adv.), C/C++ (int.), R (int.), Verilog (ele.), Assembly-68HC11, LaTeX

Libraries: Caffe, Tensorflow, OpenCV, LIBSVM/LIBLINEAR, Numpy, Scipy, Scikit-Learn, Scikit-Image

Computer Programs: KeyCreator, Cadence Virtuoso, Agilent VEE, Altera Quartus, Xilinx ISE, LTspice, Office Suites, Adobe Photoshop and Illustrator

ACTIVITIES & HOBBIES

Columnist in the Morsk Magazine

Amateur Artist (Drawing)

Volunteer for children with leukemia, autism, Down syndrome and CP at the Lodos (2012-2016)

Professional Basketball Player (2008-2016)