Sabri Bolkar

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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

Neuro-electronics Research Flanders MSc Thesis Scholarship	Spring 2018
EU Mundus Master Joint Degree Full Scholarship	2016 - 2018
Best Research Poster Award in METU Undergraduate Research Fair	May 2015
Erasmus Summer Internship Grant	Summer 2014
Scholarship of METU Alumni Association	2014 - 2016
Scholarship of Prime Ministry of Turkey	2010 - 2015
Ranked at the top 0.5% in National University Entrance Examination	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 Overlapping Cells from Image Stacks. 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 Using Convolutional Neural Networks. 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 mainly on developing FPGA prototypes of a digital oscilloscope and a tunable clock management circuit by using Verilog.

KocSistem Inc. Ankara, Turkey
Computer Networking Intern *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 Lyngby, Denmark
Neuroengineering Intern *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

Designing an Autonomous Robot Playing Ping-Pong Game Spring 2016
Bachelors graduation project that aims to create an autonomous robot playing ping pong game

Teaching

TA for Signals and Systems course, TU Delft Fall 2018
TA for Medical Imaging and Image Processing course, TU Delft Fall 2018

Education

Norwegian University of Science and Technology Gjovik, Norway
MSc in Applied Computer Science, Joint Degree at 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)