

Burak Kakillioglu

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Education

P.h D. in Electrical and Computer Engineering Syracuse University, Syracuse, NY, USA Research: 3D vision applications and autonomous UAV guidance by 3D vision Advisor: Dr. Senem Velipasalar	2015 – 2020 (expected)
B.Sc. in Electrical and Electronics Engineering Bilkent University, Ankara, TURKEY	2010 – 2015

Research

Research Assistant , Smart Vision Systems Lab, Syracuse University Interests: 3D computer vision and deep learning. Secondary: Embedded systems design and development, machine intelligence. Projects <ul style="list-style-type: none">• 3D object detection via multi-modal sensor fusion from autonomous UAVs<ul style="list-style-type: none">◦ Convolutional Multi-Scale 3D Object Detector from Single Shot Captures• Heat leakage detection from thermal images of the buildings captured by UAVs• 3D vision-based autonomous drone guidance framework<ul style="list-style-type: none">◦ Doorway detection based on 3D point cloud data and color images◦ Accurate and real altitude measurement and autonomous safe landing location detection◦ Highly modular autonomous UAV control and guidance framework	2015 – present
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Undergraduate Research

Senior Project , Bilkent University, Electrical and Electronics Engineering Tracking and Predicting Possible Dangers in Mines and Position Tracking for Miners by Using Wireless Sensor Network Advisors: Prof. Nail Akar, Dr. Alper Sarikan	2014 – 2015
Research Project , Bilkent University, Electrical and Electronics Engineering H.264 Video Decoding and Android Application, Part of the project of Ministry of Forestry Advisor: Prof. Enis Cetin	2015

Publications

Journal Papers T. Rakha, B. Kakillioglu , et al. "Heat Mapping Drones: An Autonomous Computer Vision-based Procedure for Building Envelope Inspection using Unmanned Aerial Systems (UAS)" <i>Technology Architecture + Design</i> (REVIEWED, MINOR MODIFICATIONS WILL BE SUBMITTED)	2017
Conference Papers B. Kakillioglu , Y. Lu, S. Velipasalar, "Convolutional Multi-Scale 3D Object Detector from Single Shot Captures" (<i>In preparation, to be submitted to CVPR 2018</i>)	2018
B. Kakillioglu , S. Velipasalar, "Autonomous Altitude Measurement and Landing Area Detection for Indoor UAV Applications" <i>IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS 2016)</i>	2016
B. Kakillioglu , K. Ozcan, S. Velipasalar "Doorway Detection for Autonomous Indoor Navigation of Unmanned Vehicles" <i>IEEE International Conference on Image Processing (ICIP 2016)</i>	2016

Professional Experience

Summer Intern, ASELSAN INC.	2014
Underwater Communication System: BPF Design Using FPGA and MATLAB, Interfacing with 24-Bit ADC and DAC, communication protocol	
Summer Intern, Arcelik INC.	2013
R&D TV Design Application intern. RC-5 Com. Protocol, DC-DC Converter Topologies, LVDS Technology, PCB Design with Altium Designer	

Technical Skills

Software

Very fluent: **Python, C/C++, Matlab**
Fluent: Java, C#, Android, Assembly
Experience in: Bash, VHDL, JavaScript, PHP, CSS, SQL

Tools and APIs

TensorFlow, Keras, OpenCV, PCL, ROS, pymavlink.

Hardware

Raspberry Pi and similar embedded platforms, Nvidia Jetson, Arduino, Pixhawk Flight Controller, FPGA

OS

Windows, Linux (advanced), OSX (intermediate)

Concepts

Computer vision, machine learning, embedded system design (hw/sw), IoT, signal processing, software engineering, electrical engineering.

Course Projects

Graduate Course Projects	2015 – 2017
<ul style="list-style-type: none">Raspberry Pi based autonomous speaker (person of interest) tracker and camera position control with step motorC# .NET based Test Harness server and clientC++ Dependency Analyzer with online code publisher server and repository, user client	
Undergraduate Course Projects	2011 – 2015
<ul style="list-style-type: none">Tracking and Predicting Possible Dangers in Mines and Position Tracking for Miners via Wireless Sensor NetworkH.264 Video Decoding and Android ApplicationSpeech Processing for Android Hearing Aid ApplicationBuck Converter Based Adjustable Voltage SupplyInfrared Chat Terminal using 8051 MicroprocessorVGA Display Animated Parking System using FPGATRC-10 AM Band Transceiver RadiotelephoneJava Physics Simulator	
Personal Projects	2014
<ul style="list-style-type: none">Wirelessly Controllable Home-Garden Automation System	

Honors and Awards

Honor and High Honor Certificates , Bilkent University Electrical Engineering Department	2011-2015
Tuition Scholarship , Bilkent University Electrical Engineering	2010
Top 0.07% , National University Entrance Exam among 1.5m+ candidates	2010

Languages

Turkish (Native)
English (Proficient)
Italian (Elementary)

Service and Outreach

Turkish Student Association at Syracuse University

Executive board secretary

2015 – present

Officer

2016

2015

Bilkent IEEE Student Branch

2010 – 2014

Worked as a volunteer student member. Involved in organization of 100+ events.

Roles:

- Executive Board Mentor
- Executive Board Treasurer
- Webmaster
- Active Member

2014

2013

2012

2011

Chair, Bilkent Robotics Club

2015

Organization of hobby electronics workshops.

Organization Team, Road To University, Bilkent University

2011 – 2015

An educational program organized by student volunteers and aimed to demonstrate campus life, engineering departments and their work and research areas to high school students from all quarters of Turkey. This 5-day program consists of seminars, laboratory works, conferences, entertaining events and provides awareness in engineering areas before their university preparation period.