KADIR CIMENCI

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Personal Details:

Birth Place/Year : Ankara , 11/07/1988
Driver's License : Yes (Type B)
Marital Status : Married

Education:

- Middle East Technical University Electric-Electronics Faculty
  Control Systems Department (GPA : 3.86 / 4.00) 2013-2016
- Istanbul Technical University Electric-Electronics Faculty 2007-2012
  Electronics Engineering Department (GPA : 3.47 / 4.00)
- Istanbul Technical University Faculty of Mechanical Engineering
  Mechanical Engineering Department (GPA: 3.26 / 4.00) 2007-2012
- Isiklar High School 2002-2006
- Ataturk Primary School 1995-2001

Career Interest:

- Electronics Engineering
  - Embedded Software&Hardware Development
  - Digital Hardware Description (VHDL/Verilog)
  - Control System Theory - Classical & Modern Control Systems
  - Sensor Data Fusion / State Estimation
  - Wireless Sensor Networks – Design & Analysis
  - Embedded System Applications / Microprocessor Systems
  - Optimal & Robust Control Theory
  - Nonlinear Systems Control
  - Machine Learning & Neural Networks
  - Unix Like Systems & Embedded RTOS

- Mechanical Engineering
  (System Dynamics and Control Branch)
  - Fuzzy Logic and Adaptive Control Applications
  - Manipulator Systems
  - Robot Motion Planning
  - Optimization
  - Dynamic Trajectory&Path Planning
  - Model Predictive Control
  - Control Applications with Dynamic Inversion Methods
  - Computer Controlled System Design

Business Experience:

- **Romaeris Corp. (2017 – Present)**

  Position : Electronics Engineer

  Responsibilities:

  1) Software design for ground station and autopilot system for a commercial UAV
     - Data logger applications in C++, autopilot system design and development of a ground station for TMTC operations.

- **TAI Turkish Aerospace Industries, Inc.(2014 - 2017)**

  Position : Guidance and Control Systems Design Engineer

  Responsibilities:

  1) Autopilot system and navigation controller algorithms design for unmanned air vehicles
     - Designing stability&control augmentation systems (SAS&CAS) and autopilot systems for different types of unmanned air vehicles (fixed-wing, rotary-wing, hybrid). Robustness and performance anaylsis of controllers with loop breaking and singular value methods.

  2) System identification with real time flight data
     - System identification of a small scaled fixed wing aircraft on time and frequency domains with the help of real time flight data on special maneuvers including frequency sweep and transient responses.

  3) State estimation and sensor data fusion algorithms design
     Observer and estimator design for different variables to monitor flight dynamics and to provide required feedbacks to control loops.

- **Havelsan Inc. (2012-2014)**

  Position : Embedded Software and Control Systems Design Engineer

  Responsibilities:

  1) Control system design for a micro air vehicle
     - Designing autopilot and navigation controllers for a micro air vehicle. Designing related embedded software for the onboard mission computer which has ARM Cortex M4 series microprocessors. Hardware in the loop (HIL) simulations for software and performance tests. AHRS and INS system design.

  2) Border security
     - Designing pattern recognition algorithms to detect and classify (people, animal and vehicle etc.) intrusions to a secure zone with the help of unattended ground sensors like seismic, passive infrared, acoustic.

  3) Wireless sensor network
     - Designing a wireless sensor network with mesh topology. Designing sensor data fusion algorithms and adaptive filters on STR911 based microcontrollers placed in field sensors.

Projects & Personal Interests:

- **Paparazzi**

  Paparazzi is an open source hardware&software autopilot project which has many users all around the world. I have contributions on this project related with INS, digital filtering and mission planner module. I am an active drone user and I am trying to make more contributions to the community related with the autopilot algorithms.

- **Network Planning & Design**

  I am interested in designing network stacks for specific tasks related with wireless sensor network topologies and I am familiar with network analysis & simulation tools like OMNeT. I believe dynamic adaptation of a wireless sensor network in workspace will greatly increase the effectiveness , lifetime and operability of the system. I am excited about developing decentralized learning algorithms & dynamic network reconfiguration algorithms and implementing related network stacks in embedded microprocessor architectures.

- **Tamsat Cubesat**

  I have designed the beacon hardware and its embedded software for the cube satellite project managed by Tamsat. I had worked on AFSK modulation and

implementation of AX25-UI communication protocol. We have used LPC1769 and MSP430 based microcontrollers to drive ADF7012 radio on the beacon.

- **Dynamic Formation Control with Heterogeneous Mobile Robots**
  (MSc Graduation Thesis- 2016)

  In this project, I have implemented a formation control system based upon a partially decentralized topology within a swarm. This swarm is composed with heterogeneous agents from different physical and dynamical properties. Also I have implemented a local positioning system to provide position data to the agents which do not have a position measurement sensor onboard. I have made some hardware demonstrations to illustrate the applicability of the proposed solutions in real time systems. I'm about to submit my research paper named “Dynamic formation control of heterogeneous mobile robots”.

- **Position and Orientation Control of a Model Helicopter**
  (BSc Graduation Thesis/Electronics Engineering- 2012)

  In this project, I have designed a stabilization controller to control the aircraft's attitude angles with the help of an inertial measurement unit and a magnetometer. A navigation controller is designed as an outer loop to control the position and translational speed of the model helicopter. Both hardware&software design is done within this project.

- **Robot Manipulator Control in Closed Loop by Using Nickel- Titanium Shape Memory Smart Alloys**
  (BSc Graduation Thesis/Mechanical Engineering- 2012)

  In this project, I have controlled a robot manipulator with two degree of freedom by taking visual feedbacks provided by a camera, in closed loop with computer. The driving components of the manipulator are shape memory alloys which are prepared with special process of nickel and titanium elements.

Talents:

Foreign Language	:English (Advanced)
Software Languages	:C, C++, Python
Hardware Description Languages	:VHDL, Verilog HDL
Tools&IDEs	:MATLAB&Simulink, Octave, XilinxISE, Labview, Eclipse(CDT), Orcad Pspice, ISIS Proteus / Ares, Visual Studio, EMACS

Operating System	:Unix Like Operating Systems, ROS(Robot Operating System), Windows, Free RTOS, VxWorks
Design&Analysis Tools	:OMNeT, Autocad, Solidworks, Catia
Versioning tools	:Git, Svn
Project Management Tools	:JIRA, Doors, Team Foundation Server
Hobbies	:Technology, Travelling, Music