

Burak Soner

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 [GitHub\(sonebu\)](https://github.com/sonebu)

 [LinkedIn](#)

 [Google Scholar](#)



EDUCATION



09/2016 – 01/2022 **PhD., Koç University, Electrical and Electronics Engineering**

Thesis: “Visible Light Communication and Localization for Autonomous Vehicles”



09/2010 – 01/2014 **BSc., Sabancı University, Mechatronics**

Thesis: “Modeling, Simulation and Implementation of a DFIG-based Wind Energy System”



09/1998 – 06/2010 **VKV Koç Primary and High School**

PROFESSIONAL EXPERIENCE



sobu labs Engineering & Research

Ankara, TR

10/2020 – ongoing **Founder**

Tailored solutions. Currently → FPGA-based DSP, communications and AI, AI-aided GNSS anti-jamming ([Edge μwave](#), TR), multimodal AI navigation stack for UAVs ([SiFly](#), CA / USA).



HyperbeeAI Inc. (a.k.a. ShallowAI Inc.)

Istanbul, TR / Palo Alto, CA

09/2024 – ongoing **Advisor**

09/2019 – 09/2024 **Lead Researcher → R&D Manager + Business Development**

Led a decorated team of 30+ researchers and academics in building record-breaking compact AI models for various domains, deployed on CPUs, GPUs, VPUs, low-power SoCs and AI accelerators.



Koç University

Istanbul, TR

02/2024 – ongoing **Adjunct Lecturer**

Teaching ELEC 305: Digital System Design Laboratories. Building custom circuits and a wide range of processors (e.g., systolic arrays, AI accelerators) for DSP, from scratch, on AMD-Xilinx FPGAs.



Koç University Ford Otosan Research Center (a.k.a. KUFOTAL)

Istanbul, TR

05/2019 – 06/2021 **Research Engineer**

Implemented industry-standard 5.9 GHz DSRC RF communication protocols for vehicle platooning. Designed and built a prototype visible light communication (VLC) transceiver for vehicle head/tail lights and benchmarked performance of hybrid VLC+RF systems on SDRs (NI USRP).

**CY Vision**

Istanbul, TR / San Jose, CA

01/2017 – 01/2019 **Research Engineer**

Member of the core team that [secured Series A](#) and built the first 30 FPS Full HD head-mounted holographic video pipeline on Jetson TX2 and a Kintex FPGA.

**AVL List GmbH**

Istanbul, TR / Regensburg, DE

06/2014 – 07/2016 **Systems Engineer**

ISO26262-compliant e-drive controller hardware and real-time embedded software with major automotive OEMs. AUTOSAR-based development ([published an article on the design aspects](#)).

ACADEMIC RESEARCH

20+ publications and peer reviewer of 30+ articles on reputed IEEE journals and conferences (IECON, PIMRC, TIP, TVT, T-ITS, ...) as well as a patent. See [Google Scholar profile](#) for related links.

01/2019 – ongoing **Koç University Wireless Networks Lab**

Past, with Prof. Sinem Çöleri: First vehicular VLC and positioning system for collision avoidance.

Current, as co-advisor: RF-based vitals monitoring (X-band), indoor localization over WiFi, wireless sensing with battery-free tags (over antenna param.s), comm. and navigation on UAVs.

09/2016 – 01/2019 **Koç University Optical Microsystems Lab** (PI: Prof. Hakan Ürey)

ERC WEAR3D project: Computer-generated holography, compression methods enabling wireless transmission of holograms for the first time and light-efficient near-eye displays with pupil tracking.

06/2014 – 07/2016 **Sabancı University Microsystems Lab** (PI: Prof. Asif Šabanović)

Power electronics and controls for wind power harvesting, [published](#) at top IEEE conferences. Modernized lab resources in the process with state-of-the-art industrial microcontrollers.

OTHER SKILLS & EXPERTISE

Extensive hands-on experience:

- develop compact neural nets and real-time signal processing algorithms for **any target hardware**
- industrial and automotive-grade MCUs (TI, Freescale/NXP, Infineon, ...), heterogeneous SoCs and AI accelerators (MAX7800x, Qualcomm NPUs, ...), x86-64/ARM CPUs, NVIDIA/AMD GPUs, Intel GPU/VPUs (Movidius), AMD-Xilinx FPGAs and Ettus / NI USRPs.
- mixed-signal RF circuit design, PCB layout, production, build and test

PERSONAL

- Speaks Turkish (native), English (advanced), German and French (beginner)
- Basketball (semi-pro: 2005-2010), ski-mountaineering and hiking, summits in TR and FR
- Founding member, trumpet/flugelhorn, Orhanlı Caz Topluluğu (OCT). OCT played funk / jazz / fusion in various high-profile venues around Istanbul (Nublu, Kiki, and bomontiada)