Elbruz Ozen

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OBJECTIVE

To secure an internship in computer engineering to hone my skills and further my understanding of industrial needs and goals while contributing to hiring team's growth and success by taking an active role in the development process with a positive impact.

RESEARCH INTERESTS

Computer Architecture, Hardware Security, VLSI Test, Non-Volatile Memory, Digital Design.

EDUCATION

University of California, San Diego, La Jolla, California, USA

- Ph.D. in Computer Engineering — Sep 2017 – Current
  - GPA: 4.00 / 4.00

Bilkent University, Ankara, Turkey

- B.Sc. in Electrical and Electronics Engineering — Sep 2013 – Jun 2017
  - GPA: 3.95 / 4.00

WORK EXPERIENCE

University of California, San Diego, La Jolla, California, USA

- Graduate Research Assistant - Computer Science and Engineering Department — Sep 2017 – Current
  - **Supervisor:** Prof. Alex Orailoglu

Synopsys Inc, Mountain View, California, USA

- Summer Internship - Solutions IP Group — Jun 2018 – Sep 2018
  - **Topic:** Design and Verilog implementation of custom error correcting codes for memory.

Fraunhofer IIS Research Institute, Erlangen, Germany

- Summer Research Internship - Radio Communication Systems Department — Jun 2016 – Sep 2016
  - **Topic:** Implementation of VLF (Very Low Frequency) broadcast receiver. Signals are captured using a 3-axis loop antenna and sampled by using spectrum analyzer, sound card and software-defined radio. Signal processing steps (filtering, locating transmitter direction, power measurements, logging and visualization) are implemented in software using Python. **Certificate Link:** https://goo.gl/uaUQxv

National Magnetic Resonance Research Center, Ankara, Turkey

- Summer Internship — Aug 2015 – Sep 2015
  - **Topic:** Network (IP) and transport (UDP) layer controller hardware for data link layer chip (ENC28J60). Design of I^2C EEPROM and sensor controllers. Development through VHDL using Xilinx ISE and tested on Basys2 FPGA board.

AWARDS & SCHOLARSHIPS

- **Jacobs School of Engineering Fellowship** by University of California, San Diego — 2017 – 2020
  Awarded for 3 academic years between 2017 and 2020.
- **Academic Excellence Award** by Bilkent University EEE — Jun 2017
  For outstanding academic success in undergraduate education in Bilkent University.
- **High Honor Degree** in all undergraduate semesters by Bilkent University — 2013 – 2017
  For consistently excellent GPA.
- **Comprehensive (100%) Scholarship** by Bilkent University — 2013 – 2017
  For outstanding success in university admission exam.
- **EEE102: Introduction to Digital Design Best Project Award** by Bilkent University EEE — 2014
  Project: AngryBot: Sumo and Line Follower Robot on FPGA. Presented in Bilkent Graduate Research Conference.
  Certificate: https://goo.gl/2ziRcv **Project Poster:** https://goo.gl/9zdf4N
- **Invited Participant of National Biology Olympiads Summer Camp** — Aug 2011
  by TUBITAK (Scientific and Technological Research Council of Turkey).
  Based on success in National Biology Olympiad Exams (among first 50 in Turkey).

SKILLS

Advanced: VHDL, C, C++, Python, Java, MATLAB, Xilinx Vivado & ISE, LTSpice, MS Office
Intermediate: Verilog, LLVM, gem5, Linux, MIPS and 8051 Assembly, Jupyter Notebook, Android Development, LaTeX
Beginner: Synopsys VCS, Synopsys VC Formal, Cadence IC Design Tools, DipTrace, Git

LANGUAGES

Turkish (Native), English (Advanced), German (Beginner).

PERFORMANCE

Graduate Record Examinations (GRE) Sep 2016
Quantitative: 169/170 (97th percentile), Verbal: 156/170 (72nd percentile), Analytical Writing: 4.0/6.0 (59th percentile)

TOEFL iBT Sep 2016
Total Score: 104/120 (Reading: 30, Listening: 27, Speaking: 22, Writing: 25)

OSYS University Admission Exam Jun 2012
Ranked 389th (Medicine Category) and 555th (Engineering Category) out of 506,271 participants in Turkey.

SELECTED PROJECTS

Digital Design

- AngryBot: Sumo and line follower robot on FPGA.
  - **Project Video:** https://youtu.be/7Jn2UqCknNg
- Transport layer (UDP) internet chip on FPGA.
  - **Source Code:** https://github.com/elbruzOzen/enc28j600_ethernet_controller
- 10 MBit UART controller on FPGA.
  - **Source Code:** https://github.com/elbruzOzen/uart_vhdl
- I^2C & SPI controllers on FPGA for EEPROM and sensor devices.
  - **I^2C Source Code:** https://github.com/elbruzOzen/i2c_master_vhdl
- Glove Mouse: Movement and gesture recognition glove to control PC mouse cursor.

Robotics & Embedded Systems

- Remote controlled Android robot car via internet.
- 3D object scanner with infrared distance sensor.

Signal Processing

- Android Sound Filter: Software based sound filters implemented on Android phone.
  - **Source Code:** https://github.com/elbruzOzen/SoundFilter
- VLF signal receiver implemented on signal spectrum analyzer, software defined radio and sound card.

Software Projects

- Compiler analysis passes implemented in LLVM
  - Reaching definitions, may-point-to, liveness, instruction count
- Automated projection mapping system with depth camera.
  - Bilkent GE401-402 Innovative Design and Entrepreneurship I-II Course Project
  - **Startup Website:** http://web2.bilkent.edu.tr/novaluma/
  - **Product Videos:** https://youtu.be/GP9WFjMkn4s https://youtu.be/bWaonlTj3sI
- 16-bit simulated programmable computer and ISA design based on Nand2Tetris online course.
- GShare, Tournament and Perceptron branch predictor implementations on software.
- CoffeeBean IDE: Tutorial based IDE (integrated development environment) for Java.
  - **Source Code:** https://github.com/elbruzOzen/coffeebean-ide
- ChatBox: TCP/IP socket desktop chat application.

Analog Circuit Design

- Design and simulation of CMOS trans-impedance amplifier IC using Cadence.
- Design and test of single-stage OPAMP using discrete components.
- Optical Communication System: Music transmission via laser.
  - **Project Video:** https://youtu.be/_vuXJYViCkU
- TRC-10 Wireless Transceiver: Radio frequency voice transmission system.
- Wireless telegraph circuit

[*CV compiled on 2018-08-04*]