A. Hazar İlhan

Curriculum Vitae

Personal

Fullname	Aytekin Hazar İlhan
Date of Birth	7th November 1988
Nationality	Turkish
Marital	Single
Military	Served
Languages	

- Turkish -Native
- English -Advanced

Contact

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Education

2011–2014 **Master of Science**, *Sabanci University*, Full-Scholarship (BIDEB), *GPA – 3.91.*
Computer Science & Engineering
Thesis: *Design and Implementation of a Digital Holographic Microscope with Fast Autofocusing*

2006–2011 **Bachelor of Science**, *Sabanci University*, 2/3 Scholarship, *GPA – 3.26.*
Computer Science & Engineering

About Me

I am a computer scientist myself, and throughout my life I had the chance to team-up and work-closely-with very skilled electronics engineers (my bff is one best!), mechatronics engineers and optics scientists. This led me to a greater understanding of what is the extent of technologies relating to 'matter'. **BUT,** Those limits don't exist in discrete domain, our mind is the limit. In this domain, perfection does exist.

Now; we are in this Cyber Age, and I feel things're heated and about to blow up!

Skills

Cognitive

- Teamworker & Manager
- Reasoning
- Fast-adapter
- Fast-learner
- Innovative
- Patient
- Musician

Technical

- Conceptual
  - Mobile & Web technologies (Back end & Front end)
  - Signal Processing, Image Processing
  - Parallel Programming (GP-GPU)
  - Optics (Digital Holography)
  - Artificial Intelligence
  - Embedded Platforms
- Programming
  - Javascript (ES5-6-7) - CSS3 - HTML5
  - Typescript
  - React, ReactNative
  - NodeJS, AngularJS, KnockoutJS, TartJS, MVC and MVVM patterns
  - Matlab
  - Verilog
  - C/C++/C#
  - Swift & Objective-C
- Tools
  - AWS, GCloud
  - Kubernetes, DockerCompose
  - Docker
  - RabbitMQ
  - Webpack, Babel, Google Closure Library
  - PhoneGap/Cordova
  - PostgreSQL & Sequelize
  - MongoDB
  - Mocha, Chai & SinonJS
  - Git
  - Sublime & VSCode
  - Electron
  - Xilinx
  - LaTEX
  - Ableton Live, Logic Pro, Pro Tools

Work Experience

2019–Present **Ommasign**, *Joint Head of Engineering & Technology*.

2017–2019 **Ommasign**, *System Architect & Engineer*.

2015–2017 **Ommasign**, *Core Full-Stack Developer*.
Ommasign is a cloud-based cross-platform HTML5 signage software that supports Linux, Mac, Windows, LG webOS Signage, LG webOS TV, iOS and Android devices. We built the system from scratch using state-of-the-art technologies and practices. The system runs as a collection of scalable micro-services habited on Amazon Web Services (now Google Cloud), and it is able to maintain an active connection with an infinite number of online devices with negligible delay.

Tools used:
- Google Cloud & Amazon Web Services (ECS, S3, Lambda)
- Kubernetes & Docker
- RabbitMQ, ElasticSearch, Redis, PostgreSQL, Sequelize
- NodeJS, Typescript and Vanilla Javascript (BE, FE and Admin panel)
- Swagger
- React,AngularJS
- Mocha, Chai & Sinon
- Webpack

2015 Sept.–Dec. **Markafoni**, *Senior Front-End Developer*.
Markafoni was one of the first well-established corporate Turkish e-commerce companies that employs more than five hundred personnels. Mainly focused on clothing and cosmetics, Markafoni used to sell high-quality products of lots of well-known brands at discounted prices. Markafoni reaches its users through a desktop website, a mobile website and native iOS & Android apps. I have worked in the Front-End development team which is responsible for the maintenance and development of the desktop and the mobile websites. The company was sold and then went bankrupt in 2017.

Tools used:
- KnockoutJS

2014–2015 **Kidstory**, *Sole Freelance Developer*.
Kidstory is a start-up company, and it develops an mobile application that listens your speech and simulataneously plays related music and/or sound effect while you are reading a story to your child. The application is currently only available in iOS. I developed both the front end & the back end of this application. In 2015 Summer, founders decided to halt the development cycle and wanted to focus on the business model and marketing strategies. There have been no further development in this project since then.

Tools used:
- TartJS
- Google Closure
- PhoneGap/Cordova
- MongoDB
- AngularJS (Admin panel)

2015 **Melodikapp**, *Sole Freelance Developer.*
A simple PC application developed for Melodika Game Studio to partially-automate and significantly improve the efficiency of audio-recording sessions of multi-language games.

Tools used:
- AngularJS
- Electron

2013 **Traxio**, *Contributing Freelance Developer.*
Traxio is a free HTML5-based digital audio workstation that enables musicians to group-up from across the globe for recording, editing and mixing a song together simultaneously. The projects are auto-synched to cloud, and thus, songs can be accessed or mixed from any device. The development of the project has been discontinued since 2015 though the source code is still availabe.

Tools used:
- AngularJS
- TartJS
- WebAudio API
- Google Closure
- MongoDB

2010 **Intern at Scheidt & Bachmann**, *Developer.*
Scheidt & Bachmann is a well-established German company that builds systems for parking & leisure centers, signalling, fare collection and petrol stations. During my 2 months internship, I had worked in the petrol stations department, and I was in charge of improving receipt generation according to the feedback from video camera. Due to the quick-completion of this task, I was assigned to 2 additional projects, which included improving the user interface of an on-field controller for company's technicians, and serialization of oil-tank level-data that arrived to the back-end through a RS-485 parallel peripheral.

Tools used:
- C (Visual Studio)
- Visual Basic

Academic Experience

2011–2014 **Real-time DHM with Optical Tweezer**, *Sabanci University*, Team-Developer.
Although licensed as Computer Science, my graduate education was involved with mainly Optics and Signal Processing. Through collaboration with an EE peer, we built a digital holographic microscope (DHM) and it's controlling software. This software utilizes an Nvidia GPU to perform intensive holographic calculations in real-time. In industry, DHMs are used for high-precision 3D imaging of objects and cells without staining. In our case, the DHM was incorporated with an optical tweezer and live cells were manipulated using the tweezer. My master's thesis benefits from this device as well.

Tools used:
- Matlab, C++, C#
- Image Processing
- Parallel Programming (CUDA)

2011–2013 **Teacher Assistant**, *Sabanci University*, Supervisor.
I have performed assitantship for Logic (CS) and Microprocessors (EE) courses in my graduate education. Assistantship duties included supervising stu dents during lab hours, preparing semester projects and reading & evaluation of homeworks & examinations.

Tools used:
- Verilog
- Xilinx
- PicAssembly
- ANSI-C

2010–2011 **AESwarm**, *Sabanci University*, Team-Developer.
AESwarm is my graduation project with an EE peer to build low-cost intelligent robots that demonstrate swarm behaviour. The project was funded by Elektrik Mühendisleri Odası (EMO). After running simulations, we designed and produced robots below the cost of a 50$ which included two brushless dc motors, a dspic33 microprocessor, 8 infrared emitters & sensors, a white-light sensor, a buzzer, and a polymer chasis. The boards were produced in Sabanci University laboratuaries and components were put together by ourselves. The robots made use of Self-Organizing Neural Networks to decide on an action depending on sensorial inputs.

Tools used:
- C# & OpenGL (Simulation)
- ANSI-C
- Eagle (Electronics board sketching software)
- Artifical Intelligence (SOMs)

2010 **V-MIPS**, *Sabanci University*, Team-Developer.
V-MIPS is a 16-bit mips processor that is able to process arrays of data at one cycle (similar to graphics processors) in 40Mhz. The processor consists of 5 pipelines and adheres to the standard mips instruction set. The processor is a full custom design implemented in Verilog and run on a Spartan-3 FPGA. We were able to drive VGA monitors while testing the performance of this processor.

Tools used:
- Spartan-3 FPGA
- Verilog
- Xilinx

Publications

Hazar A. İlhan, Mert Doğar, Meriç Özcan (2014), *Digital holographic microscopy and focusing methods based on image sharpness*, Journal of Microscopy, Volume: 255 Issue: 3, 138–149,
http://dx.doi.org/10.1111/jmi.12144

Mert Doğar, Hazar A. İlhan, Meriç Özcan (2013), *Real-time, auto-focusing digital holographic microscope using graphics processors*, Review of Scientific Instruments, Volume: 84, No: 8, 083704
http://dx.doi.org/10.1063/1.4818285

Hazar A. İlhan, Mert Doğar, Meriç Özcan (2013), *Fast autofocusing in digital holography using scaled holograms*, Optics Communications, Volume: 287, 81–84
http://dx.doi.org/10.1016/j.optcom.2012.09.036

Hazar A. İlhan, Mert Doğar, Meriç Özcan (2013), *Autofocusing in digital holography*, In Proceedings of SPIE 8644, Practical Holography XXVII: Materials and Applications, 86440C, San Francisco
http://dx.doi.org/10.1117/12.2002038

Mert Doğar, Hazar A. İlhan, Meriç Özcan (2013), *Real-time reconstruction of digital holograms with GPU*, In Proceedings of SPIE 8644, Practical Holography XXVII: Materials and Applications, 86440B, San Francisco
http://dx.doi.org/10.1117/12.2002036