ALPER ÜLKÜ

Electrical & Electronics Engineer, B.Sc, M.Sc, Ph.D.Candidate in Mat.Sci&Eng.

**General**

| Name: | **Alper ÜLKÜ** | A person wearing a white shirt and blue tie  Description automatically generated with medium confidence |
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| Address: | Yaşamkent mah. 3243. Cad,  Besa Ataşehir Evleri Blok 1A D3  06810 Ankara, Turkey |
| Phone: | Mobile: +90-536 9499951 |
| e-Mail: | [alperulku1970@gmail.com](mailto:alperulku1970@gmail.com) |
| LinkedIn: | <https://www.linkedin.com/in/alperulku1970/> |
| Birth: | **Ankara-Turkey, 1970** |
| Marital Status: | **Married, one daughter (aged 12)** |
| Driving Licence: | **B Class** |
| Citizenship: | **Republic of Turkey** |

## Language Skills

Besides Turkish, Alper Ülkü speaks:

* English (excellent), TOEFL = 607
* French (average)

| **Professional Skills** | **Experience** |
| --- | --- |
| Cockpit Display Systems Design | +12 years |
| Avionics Systems Design | +20 years |
| Technical management of projects, teams of engineers; mentoring young engineers | +20 years |
| Nanotechnology processes, specially on displays fabrication | +10 years |
| Design, manufacturing & testing according to different standards (STANAG, MIL-STD, DO, EN, ISO, IEEE etc.) | +20 years |
| Software development (Python, R, ADA-83, C/C++, Fortran77, Basic) (latest learned first) | +30 years |
| Automatic Control Systems Design (Matlab modelling and simulation, Hardware-in-the-Loop Simulation) | +3 years |
| Microcontroller/DSP board design, digital design, assembly languages, embedded software, RTOS, PCB design | +5 years |
| Display Metrology | +15 years |
| Multiple subcontractor management: Local and international companies | +15 years |
| Office tools / management tools (MS Office, MS Project, Oracle Primavera, SAP, Jira, Doors) | +25 years |
| Systems Engineering (From requirements stage to specifications, S/W design, algorithm design, implementation, integration, testing and qualification – the complete “V” curve) | +20 years |

## Work Experience

| **Company / Department** | **Title** |
| --- | --- |
| **ASELSAN Ind. Inc., Ankara (2000-present)**  **(**[www.aselsan.com](http://www.aselsan.com)**)**  Microelectronics Guidance and Electro-Optics Business Sector, Avionics Systems Design Directorate, Avionics Systems Design Dept. | Display Technologies Team Leader  Sep.2014–Present |
| **ASELSAN Ind. Inc., Ankara**  Microelectronics Guidance and Electro-Optics Business Sector, Airborne and Naval Systems Design Department | Manager  Jul.2004–Sep.2014 |
| **ASELSAN Ind. Inc., Ankara**  Microelectronics Guidance and Electro-Optics Business Sector, Image Processing Department |
| Chief Engineer  Oct.1998–Jul.2004 |
| **TUSAS Aerospace Ind. Inc., Ankara (1996-2000)**  **(**[**https://www.tusas.com/en**](https://www.tusas.com/en)**)**  Dept. of Design and Development |
| Senior Project Engineer  Mar.1996 – Oct.1998 |
| **TÜBİTAK** Information Technologies Research Institute (BİLTEN)  **(1990-1996)**  **(**[**https://uzay.tubitak.gov.tr/en**](https://uzay.tubitak.gov.tr/en)**)**  Dept.of Electrical and Electronics Eng. | Embedded System Engineer  Mar.1990–Mar.1996 |

*Note: In addition to the above work experience, I am also a part-time lecturer for the technical elective course “****Display Technology and Design****” at three university’s EEE departments: Ankara TOBB-ETU (on-site), Ankara University (online) and Karadeniz Technical University (online). See latest page for course outline.*

## Academic Studies

| **Degree** | **School / Department** | **Major / Minor / Thesis** | **Graduation Degree** | **Dates** |
| --- | --- | --- | --- | --- |
| Graduate Studies  (Ph.D.) | Gebze Technical Univ. (GTU), Dept. of Material Science & Eng., Gebze | Thesis Work: “Junctionless TFT Design for OLED Display Devices” (Ongoing) | 3.67 / 4.00  Ph.D. candidate  (*Qualification exam pass and all courses complete)* | 2019 – 2024 |
| Graduate Studies  (M.Sc.) | Gazi Univ., Dept. of Electrical & Electronics Eng., Ankara | Thesis: “Automatic Control System Design For an Unmanned Aerial Vehicle | 3.50 / 4.00 | 1996 – 1999 |
| University  (B.Sc.) | Middle East Technical Univ. (METU), Dept. of Electrical & Electronics Eng., Ankara | Computer / Telecommunication | 2.49 / 4.00 | 1987 – 1991 |
| High School | TED Ankara College, Ankara | Math / Science | 9.0 / 10.0 | 1984 – 1987 |

## Achievements

* Developer of “Junctionless Thin Film Transistor Array Design for AMOLED Display Device” using SILVACO TCAD, ATLAS and Athena Tools (2022 – ongoing).
* My Ph.D. thesis work was entitled as a “TOHUM” (“Seed”) Project and got funded by my company ASELSAN for 50.000 USD. (2022 – ongoing)
* Seasoned lecturer of “Display Technology and Design” course to more than 200 university students, at three Universities: TOBB ETU, Ankara University and Karadeniz University (September 2015 – present)
* Ph.D. Candidate in Material Science and Engineering, Qualified, exam passed in first trial. (2022)
* Now leading design team for 3.2” AMOLED display, world’s first “military ruggedized OLED display”. (2021- present)
* Established infrastructure for Active Matrix OLED Display Development in 10.000-class cleanroom in ASELSAN MGEO. (2017-2021)
* Leaded design team to ruggedize 4” PMOLED wrist worn display (2018-2021),
* Leaded design team to ruggedize 6”, 12”, 20” LCD modules. (2017-2021)
* Designed Turkey’s first Ruggedized 10”, 1024x768 Color LCD Module, device in production. (2014-2017)
* Designed Turkey’s first near eye, 1”, 160x120 PMOLED Display Module, device in production. (2014-2017)
* Coworked/managed Sabancı University for design of World 1st 160x120, 1” Graphene Anode, small molecule PMOLED display (2014-2017)
* Established infrastructure for LCD Ruggedization in 1000-class cleanroom in ASELSAN MGEO. (2013-2015)
* Established infrastructure for Passive Matrix OLED Display Development in 10.000-class cleanroom in ASELSAN MGEO. (2013-2015)
* Designed from scratch and managed Turkey’s first Multifunctional Display. VMFD-68 successfully delivered to ATAK program, in production, design certified, patented. (2008-2012)
* Managed Airborne and Naval Systems Design Department in ASELSAN MGEO. (2004-2014)
* Designed KDU-44 Control Display Unit. KDU-44 successfully delivered to ATAK program, in production, design certified. (2011-2014)
* Performed Systems Engineering work in ATAK Program. (2008-2012)
* Designed System Architecture for Fighter Modernization Programs for RF-4E, F-4E. (2004-2007)
* Authored, tailored Software Engineering Process, Systems Engineering Process per military/industrial standards (2004 - 2014)
* Designed System Architecture for Helicopter Modernization Programs for S70A, AH-1W, UH-1H Helicopter Modernization. (2001-2005)
* Business development, project management, technical management, subcontractor management and supervision of long-term, multinational and multi-disciplinary defence projects on Avionic Systems with a total budget of more than 500 million USD (2000 – present). Status: More than 95% completed at present.
* Invited Commitee member and contributions to the development of 11th and 12th 5-year Development Plan of Turkey (2018, 2023)
* Avionics system architecture design of 5 different airborne platforms AH-1W, UH-60, ATAK, S70A and S70B (2004-2014)
* System design of Command and Control System for naval Frigate ship (2012)
* Design, implementation and qualification of a cockpit simulator completed within 9 months from business development to end of qualification. (2007)
* Embedded Keil-C and assembler code development on Intel 80188, 8031 and PIC16C42 for remote terminal units of a 10kV Mid Range Power SCADA System at TUBITAK BILTEN. (1992-1996)
* Fully architected and designed the Hardware in the Loop (HIL) system for Gain-scheduled Eigenspace Assignment method for pitch, roll, yaw, heading, altitude autopilot for Flight Control System Development for Turna Unmanned Aerial Vehicle. Work presented in European Control Conference, Karslruhe, 1999.

## Main Assets

* I am the expert and master of display technology, avionics, have 30+ year career in Turkey, taking part in many engineering design processes that constitute many products, systems and software.
* I am especially and infrastructure builder, problem solver, fast-learner with strong team-working and technical management skills. I am a dedicated learner, I see no limits of technical difficulty.
* I have hands-on experience on design, software/hardware implemention, optics, functionally / optical testing of displays.
* I lecture regularly 14-week in Universities on Display Design and Technology.
* LCD and OLED Displays Technology
  + LCD and OLED Displays Technology
  + Display Ruggedization Process for MIL-STD-810, SAE-ARP-8034, IEC 60945 compliance.
  + LED Backlight Unit Design
  + LCD/OLED display devices architecture design
  + LCD/OLED Production line infrastructure design
* I am Ph.D. Candidate in Material Science and Engineering, Gebze Technical University, ongoing thesis work on “Design and Simulation of Thin-Film-Transistor (TFT) Arrays for OLED Display Devices”. Thesis work ongoing on SILVACO ATLAS and Athena tools.
* Latest research work are:
  + “Investigation of Drain Induced Barrier Lowering and Subthreshold Slope in Junctionless Thin Film Transistor Architectures” (submission process ongoing to IEEE Transactions of Electron Devices.)
  + “Removing crosstalk effect for high efficient polymer light emitting diode display” <https://doi.org/10.1016/j.sse.2022.108253>
  + “A review of high-end display technologies focusing on inkjet printed manufacturing” <https://doi.org/10.1016/j.mtcomm.2023.105534>
* I have extensive experience in both technical disciplines (software, materials, system design, technical management) and project management. This has benefited me in managing complex projects involving various risks.
* When necessary, with consent of management, I may push the conditions to the limit and use all available means in order to get the job done in time and complete the project.
* I have always had interests in more than one technical discipline. Instead of focusing on a narrow field, I have preferred to learn more on all related fields as well as the main technical field of focus. Over time, I have developed skills in multiple disciplines. This has benefited me with alternative methods to solve technical problems by using solutions borrowed from other fields of expertise. With the insights of my Ph.D. studies, I feel my problem solving skills improved significantly.
* Learning is a lifelong passion for me and I am always open and eager to learn new skills and develop my existing expertise. In addition to my PhD. Studies, while in global pandemic, as I am keen on maths and coding, I even developed financial skills and successfully finished a 6 months course called Executive Programme for Algorithmic Trading; actually feeling its possible benefits to my life standard. After I finished that course I am now affiliated to World Quant University’s free online programme on Master Science on Financial Engineering, expected completion in 2024 Q4.

## Awards

* **Invited Commitee member** and contributions to the development of 11th and 12th 5-year Development Plan of Turkey (2018, 2023)
* **ASELSAN** Certificate of Appreciation, for design of world 1st 160x120 pixel, 1” Graphene Anode, small molecule PMOLED display (2017)
* **ASELSAN** Certificate of Commendation, twice (2004, 2014)
* **TMMOB** (Chamber of Architects and Engineers of Turkey)Certificate of Commendation (2016)
* **Turkish University Entrance Exam (ÖSS):** 1300th place out of 700,000 students (1987)

## Selected Trainings Completed - Management

| **Training** | **Given by / Place** | **Date & Duration** |
| --- | --- | --- |
| Methodologies and Applications in Project Management | İstanbul Kurumsal Gelişim, Ankara (PMI R.E.P.) | Jan. 2013 (2 days) |
| Finance For Non-Finance Executives | MBH Group | Dec. 2010 (2 days) |
| Business Management Training | Dr. Tanıl Kılınç | Sep. 2004 (3 days) |
| Effective Requirements Management | Ian Alexander, Telelogic Academy | Jun. 2004 (2 days) |
| Negotiation Skills Training | Erkan Tozluyurt | Nov. 2003 (3 days) |
| Project Planning, Execution and Analysis Using Microsoft Project | Demir Özkaya, Makro Danışmanlık | Mar. 2003 (3 days) |

## Selected Trainings Completed – Technical (between 2021-2022 in my Ph.D. Programme)

| **Course** | **Given by** | **Grade** |
| --- | --- | --- |
| Materials Science and Engineering I and II | Gebze Tech Univ.  Dept. of Mat.Sci.&Eng | Pass |
| Structure-Property Relationships In Solids | BB |
| Advanced Fabrication Techniques in Nanotechnology | AA |
| Materials Characterization Techniques | AA |
| Fracture Mechanics | AA |
| Thermochemistry | AA |
| Scientific Research Methods and Publication Ethics | AA |
| Kinetics of Structural Transformations | AA |
| Scanning Electron Microscope | AA |

## Display Technology and Design Course Outline (14 weeks)

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## Research Interests

* Thin Film Transistor (TFT) Arrays for Displays, Junctionless TFTs
* LCD and OLED Display Technology
* Avionics Systems
* Automatic Flight Control Systems

## References (searchable and contactable from LinkedIn)

* Özcan Kahramangil, Mechanical Engineer**,** DADE Technology.
* Özcan Ertem, Aeronautical Engineer, Portland, Oregon.
* S.Tarkan Karşıdağ, Electrical Engineer, Department of National Defense of Canada.
* Reggie Pantig, Professor of Physics, Mapua University.