ALPER ÜLKÜ

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Summary

ENGINEERING SKILLS SET

- *Electrical Engineer, display technology expert, lead engineer of avionics, 30+ year career in Turkey, taking part in many engineering design processes that constitute many products, systems and software.*
- *Infrastructure builder, problem solver, fast-learner, strong team-working and technical management skills.*
- *Hands-on experience on design, software/hardware implemention, optics, functionally / optical testing of displays.*
- *Yearly 12-week lecture in TOBB University on Display Design and Technology.*
- *BScEE and MScEE in Electrical and Electronics Engineering.*
- *Area Expert on:*
  - *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*
- *2 patents on display technology*
- *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"*
- *Latest research work: (corresponding author of) Paper: "Removing crosstalk effect for high efficient polymer light emitting diode display", https://doi.org/10.1016/j.sse.2022.108253*

FINANCIAL SKILLS SET

- *"**Certificate of Excellence in Executive Programme in Algorithmic Trading (EPAT)**" by **Quantinsti** by 15 April 2022.*
- *Have strong understanding of Python libraries: **pandas, numpy, scipy, statsmodels, pyfolio, scikit-learn, xgboost** and aspects of **finance, mathematics, probability, statistics** and **machine learning** required for building and automated trading and risk management system.*
- *Developer of trading system, models and algorithms for simulation, backtesting and validation.*
- *Attending courses in World Quant University, Master of Financial Engineering, MScFE Program.*
- *Fluent programmer for **Python, C/C++, Matlab, Java, R/Rmarkdown, Excel VBA**.*
- *User of **MATLAB, JetBrains IntelliJ IDE, Jupyter Lab / Notebook, Spyder, R Studio**.*
- *Educated in portfolio generation and H. Markowitz's **Modern Portfolio Theory**. Written a paper on developing portfolio and **efficient frontier** generation of 22 assets.*
- *Invented, implemented and backtested "**Moving n-Skewness Crossover Trading Strategy**" in Python as EPAT Final Project, work approved by instructor **Mr. Nitin Aggarwal** of **Quantinsti**. Yielded far better results than classical **moving average crossover strategies**.*
- *Written Research Paper and associated R and VBA code on: "**Optimal Portfolio Construction via Efficient Frontier Analysis using Turkish Investment Funds**".*
- *Author of **DataRobotX ® Data Extraction & Reporting Suite**, a scheduled / automated data mining/scraping and visual reporting software written in Python, Java (IntelliJ), R / RMarkdown (RStudio): gets daily and history data of stocks, commodities, MTFs, ETFs from various web sites and organizes for statistical analysis, **generates automated executive summary reports with R Markdown**.*
- *Author of **MF_PORTFOLIO_MANAGER ®: Python-Excel VBA-Excel Solver based** program works in symphony with **DataRobotX ®**, automatically and simultaneously generates the best return, minimum variance, maximum Sharpe ratio portolios of 22 arbitrarily chosen assets, out of last 66-days daily return data, utilizing a-**22-by-22 covariance matrix.***
- *Trader of options/warrants especially 'protective puts' for hedging. Written Python code for **hedge ratio and greeks calculations**.*
- *Constructor of **Mutual Fund portfolios**, by using MF_PORTFOLIO_MANAGER ®, realized outstanding **yearly returns up to %92 and 3 monthly returns up to %64**, **Sharpe ratios > 5**, see my latest tearsheet below.*

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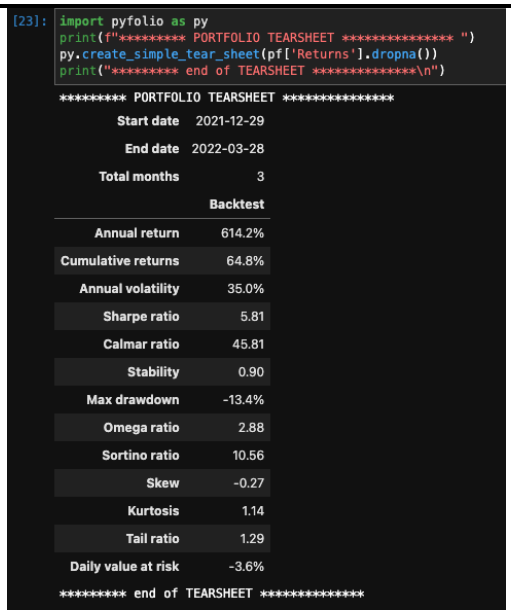

```
[23]: import pyfolio as py
      print(f"********** PORTFOLIO TEARSHEET ********** ")
      py.create_simple_tear_sheet(pf['Returns'].dropna())
      print("********** end of TEARSHEET **********\n")
```

```
********** PORTFOLIO TEARSHEET **********
```

Start date	2021-12-29
End date	2022-03-28
Total months	3
	Backtest
Annual return	614.2%
Cumulative returns	64.8%
Annual volatility	35.0%
Sharpe ratio	5.81
Calmar ratio	45.81
Stability	0.90
Max drawdown	-13.4%
Omega ratio	2.88
Sortino ratio	10.56
Skew	-0.27
Kurtosis	1.14
Tail ratio	1.29
Daily value at risk	-3.6%

```
********** end of TEARSHEET **********
```

HOBBIES

- *Financial Algorithms, Statistics, Composing in Logic Pro X w/ VSL, Spitfire Audio, East-West Sound Libraries, search "Ulquay Khan" listen in Spotify: https://open.spotify.com/artist/4lLhGy1HKhgwmDVNye1EQI*

Professional Expertise

Gebze Technical University / Dept. of Materials Science and Engineering / 2019 - present

- *Ph.D Candidate, Thesis Planned on nano crystalline silicon (nc-Si) based Thin Film Transistor Array Design for AMOLED Displays.*

TOBB-ETÜ University / Dept. of Electrical Engineering / 2015 - present

- *Seasoned Instructor for postgraduate ELE596 Course: Display Technology and Design (technical elective) within TOBB-ETU University Department of Electrical-Electronics Engineering, Ankara. (Duration: 12-weeks) see Attachment for course details.*

ASELSAN / 2000 - present

- *Senior Lead Engineer,* for avionics systems, cockpit display systems / modules.
- *Area Expert* on Liquid Crystal Displays (LCD) technology, Organic Light Emitting Diodes and devices (OLED), military grade LCD and OLED displays, Display Ruggedization Process, Backlight Design, Passive Matrix OLED device and display development.
- *Technical Leader* for 3-D Stereoscopic and Autostereoscopic Avionics Display Development with Koç University.
- *Technical Leader* for RGB-AMOLED Display Development Project, comprises AMOLED cockpit display development
- *Project and Technical Leader* for ELMAS Project, comprises of LCD Display Ruggedization and PMOLED displays development with Sabancı University.

Work Done at ASELSAN (2000 - present)

- Now designing 3.2" AMOLED display, world's first "military ruggedized OLED display". (2021- present)
- Designed 4" PMOLED wrist display, ruggedized 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 Üniversity for design of World 1st 160x120, 1" Graphene Anode, small molecule PMOLED display (2014-2017)

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- 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 and managed Turkey's first VMFD-68 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)

Summary of Work Done at TAI (1996-1999)

- 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.

Summary of Work Done at TÜBİTAK (1991-1996)

- Designed Power Control Card, Microprocessing Module, developed software on assembler, in C as Embedded Systems Engineer, 34kV Electrical Distribution Automation (SCADA) Poject.

Latest Publications:

Authors	Publication / Oral Presentation	Event
Rifat KACAR Ramis Berkay SERIN Esin UCAR Alper ÜLKÜ	"Removing crosstalk effect for high efficient polymer light emitting diode display"	Accepted for Journal of Solid State Electronics on 16 Feb 2022.
Alper ÜLKÜ	"Optimal Portfolio Construction via Efficient Frontier Analysis using Turkish Investment Funds"	Research paper to fulfill "PhD Research Ethics Course" requirements in GTU.
Esin UÇAR Alper ÜLKÜ	"Ruggedization of Liquid Crystal Displays"	8. Defence Technologies Congress, Ankara, Turkey (SAVTEK) 12-14 October 2016
Alper ÜLKÜ Hazan GÜNAY	"Night Vision Compatibility Criteria for Cockpit Displays"	6. Defence Technologies Congress, Ankara, Turkey (SAVTEK) 20-22 Haziran 2012
İrem KILINÇ Alper ÜLKÜ Suat EKMEN	"An Environmental Analysis of LCD and OLED Display Technology for Airborne Platforms"	
Alper ÜLKÜ	"Overview of Display Technology from a Global Perspective"	

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