



# Elias Kanelis


## Embedded Systems Engineer

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 tedicreations.github.io

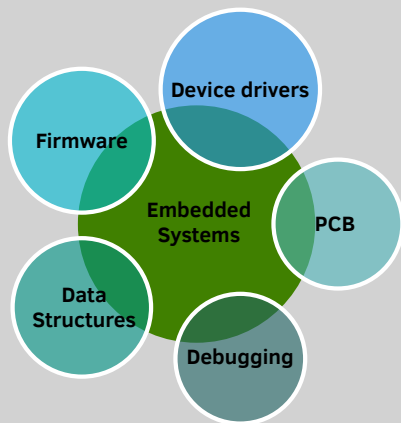
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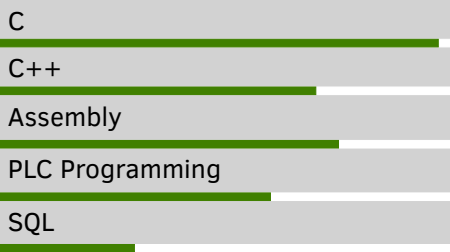
 TediCreations

## Skills

### Overview



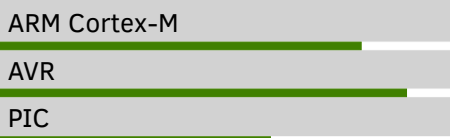
### Programming



### Scripting



### Microcontrollers



## Summary

My main interest is embedded and mechatronic systems. I love how algorithms control machines at will. Creativity is something that comes easy with me and most of it is expressed through out my art. Innovation is something hard to achieve and I try my best to examine the new Internet of Things field for new opportunities.

## Education and training

2006 - 2014	<b>BSc., Automation Control Engineering</b> (GPA: 7.23/10) Technological Educational Institution of Chalkida, Greece <b>Thesis:</b> Development of a virtual reality software library for use in SCADA systems	
2013	<b>Seminar, NI CompactRIO and FPGA design</b>	National Instruments
2010	<b>Seminar, Electrical Safety</b>	ABB Limited

## Professional Experience

Oct 2019–Now	<b>Embedded Systems Engineer</b>	Kenotom I.K.E.
Worked in a transmission control unit for use in a hybrid car.		
<ul style="list-style-type: none"><li>Design and implementation of Functional Safety Software based on automotive safety requirements.</li><li>Debugging and analyzing integration problems.</li><li>AutoSar configuration.</li></ul>		
<b>Played with:</b> Infineon Aurix TriCore(eg. TC399), many proprietary ICs		
<b>Tools used:</b> C, Tasking Compiler, Cessar CT, Trace32, AUTOSAR, ISO26262, Misra C		
Feb 2018–Jun 2019	<b>Embedded Systems Engineer</b>	DeepSea Technologies I.K.E.
Developing a data acquisition network of sensors for sending vessel data to a Neural Network that predicts oil consumption, does ship monitoring and helps to optimize critical performance parameters. Worked as an 'one man' firmware, software, hardware and field engineer under extreme pressure and tight deadlines.		
<ul style="list-style-type: none"><li>Developed the data acquisition user space application, the low level device drivers and designed the PCBs.</li><li>Automated hardware testing for defects via Python.</li><li>Performed a few installations to our client vessels.</li><li>Aid in solving a major wireless networking issue deep inside the vessel's Engine.</li></ul>		
<b>Played with:</b> Raspberry Pi 3, sx1276, mcp3424, lsm9ds1		
<b>Tools used:</b> Python3, C, mbpoll, KiCad		
2014–Jan 2017	<b>Founder</b>	"Beehive" weighting and antitheft system
Design and manufacture of a product based on ARM Cortex-M microcontroller and sensors that help beekeepers keep track of their amount of honey, temperature, humidity and GPS status (anti-theft) in beehive farming.		
<ul style="list-style-type: none"><li>Designed the product from birth to finish. (pending battery management)</li><li>Tried to be Misra C compliant as an exercise to myself.</li><li>Followed Test driven development workflow.</li><li>Developed an AT command parser.</li></ul>		
<b>Played with:</b> stm32f072rb, atsam4l, atmega8, m41t81, mcp3421, mma8541q, sim900		
<b>Tools used:</b> TDD, C, gcc, gdb, valgrind, GNU Make, MisraC, cppUtest, CMSIS, FreeR-TOS, Altium Designer		

## OS

GNU/Linux

Windows

## Tools

Eagle

Altium Designer

KiCad

P-Spice

Multisim

Git

Doxygen

Matlab (Core)

Labview

## Protocols

U(S)ART

I2C

SPI

LoRa

Mobdus

Can Bus

NMEA 0183

## Language

Greek

English (First Certificate in English)

German (Zertifikat Deutsch)

## Mini Projects

**HSM** - A hierarchical state machine in C without the use of dynamical allocation.

**sString** - A C string module that does not use dynamical allocation.

**Real Engine** - Developed a custom Game Engine in C++ with the following libraries: Irrlicht SDK, Havok Physics and Animation SDK, LUA scripting language and Irrklang SDK.

2015–2017

**Teacher, Part time**

Efodia Karieras I.K.E.

- Preparing students for the Cambridge/Vellum Diploma in IT Skills.
- Organized educational workshop on microcontrollers and the Arduino platform.

**Played with:** Arduino

**Tools used:** Atmel Studio 7, Arduino IDE

2017

**Freelancer**

Aftermarket Marine Parts, Piraeus

Redesigned an electronic fuel injection controller PCB based on an old circuit of 2005 called Megasquirt that consisted of obsolete parts. This would control a speedboat's electronic fuel injection engine as the customer wanted.

**Played with:** Megasquirt 3 Module, 68hc908

**Tools used:** Eagle

2016

**Freelancer**

Client

Designed a solution that notifies the user/client over GSM network about the status of an AC motor that was used as a pump for watering cotton fields.

**Played with:** atmega8, sim900

**Tools used:** Eagle, Atmel Studio 7

2014

**Freelance**

UV PCB developer box

Designed a 'UV PCB developer box' that is able to build dual layer PCBs and has a timer to automate itself.

**Played with:** atmega8

**Tools used:** Eagle, Atmel Studio 7

Sep 2012–Jan 2013

**Electronics Engineer**

Sielman S.A.

- Electronic repair of MIM-23 Hawk missile system's electronics.
- Design and manufacture of a test bench for Hummer SUVs DC generators using LABVIEW.

2011–2012

**Automation Engineer**

Automation System Hellas S.A.

- Development of fire detection and TMS control SCADA application at Egnatia Motorway tunnels in Ioannina, Greece.
- Development of production process automation SCADA application of the Culture line for the OLYMPUS DAIRY INDUSTRY S.A. in Larissa, Greece.
- Electronic repair of broken pneumatic valve PLC-driver boards.
- PLC and SCADA programming, testing and debugging.

2010 Summer

**Internship**

Kalogiannis Koutsikos distillery A.B.E.

- Electrical machinery maintenance.

2008 Summer

**Internship**

Soukos Robots S.A.

- Development of an innovative smart fully automated wastebin controlled by a SIEMENS Logo PLC.

# Theoretical Knowledge

## Classical and modern Control Theory of dynamical systems

- Classical and modern Control Theory of dynamical systems.
- Stability, Controllability and observability.
- Adaptive, Hierarchical, Intelligent, Optimal, Robust and Stochastic control.
- System identification.
- Neural network and fuzzy logic control.

## Robotics

- (Inverse) Kinematics and dynamics theory of movement.

## Mechatronics

- Electronics.
- Sensor data acquisition and actuator control.

## Telematics

- SCADA systems.
- M2M interface.

## Telecommunications

- Laplace, Z- transform.

# Spare time activities

- Playing music (blues and greek rebetiko) with Tzouras, Cretan lute or the Guitar.
- Trying to live a zero waste life. This is a challenge when living in the city.
- Drawing comics into giving life to unique fantastical characters.
- Hiking, bushcrafting, camping and cooking under fire.
- Reading lots of books.
- Building stuff.

April 1, 2020