Dimitrios Vlachos

Senior Software Engineer Algorithms, R&D , Robotics & Embedded devices

Websites: http://dvlachos.dev / http://vira.works
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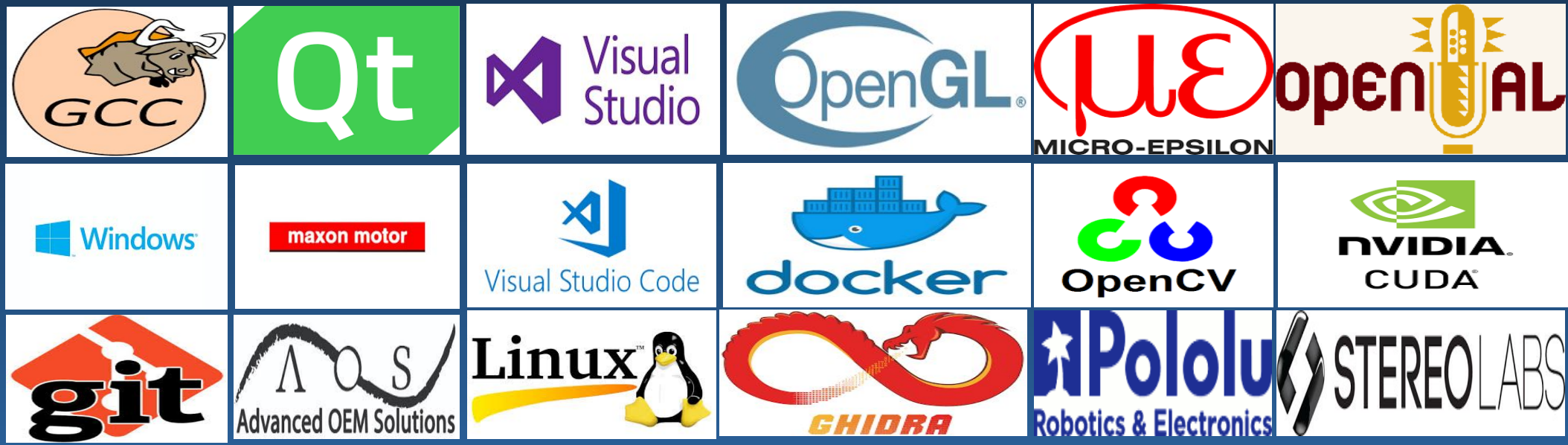
Skillset

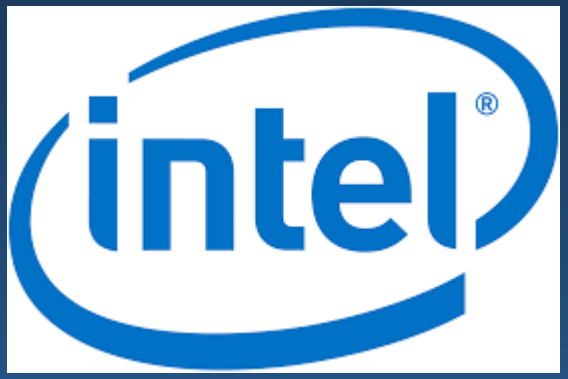
- *23+ Years of programming experience (C,C++,Assembly,Scripting)*
- *Deep learning / Computer Vision*
- *Embedded devices / Robotics (full stack implementation / Fanuc robots / MAXON&Roboclaw controllers/encoders)*
- *Sensors (eg : profilometers like Microepsilon's 1mm accuracy profilometers , Phased Array AOS C++ SDK)*
- *Algorithms & Optimization (CPU parallelization/GPU:CUDA)*
- *Data compression (Including a proprietary symbol sequence predictor)*
- *Networking (protocol implementation)*
- *OpenGL/OpenAL/OpenCV*
- *QT Creator / Visual Studio / Visual Studio Code / Atom / GCC Compiler/Debugger toolset*
- *Experience with Linux kernel driver / module implementation*
- *Motor controller programming (Maxon / Roboclaw / etc)*
- *Containers/VMS:Docker/etc*
- *Reversing (eg: Ghidra...etc)*



Competitions

2nd place at Intel's worldwide competition "Accelerate your code" out of 130+ submissions.

Solution page: https://github.com/DimitrisVlachos/INTEL-AYC-2013SUMMER--2ND-PLACE-SOLUTION



Completed Projects

Project name : "Minotaur-R"

Website: http://www.esmera-project.eu/minotaur-r/
Video: https://www.youtube.com/watch?v=Jn_fYIvK5YU
Description: "A pick and place robot placed in Radio active environment that uses various tools and computer vision/Deep Learning to separate radio active springs from trash."

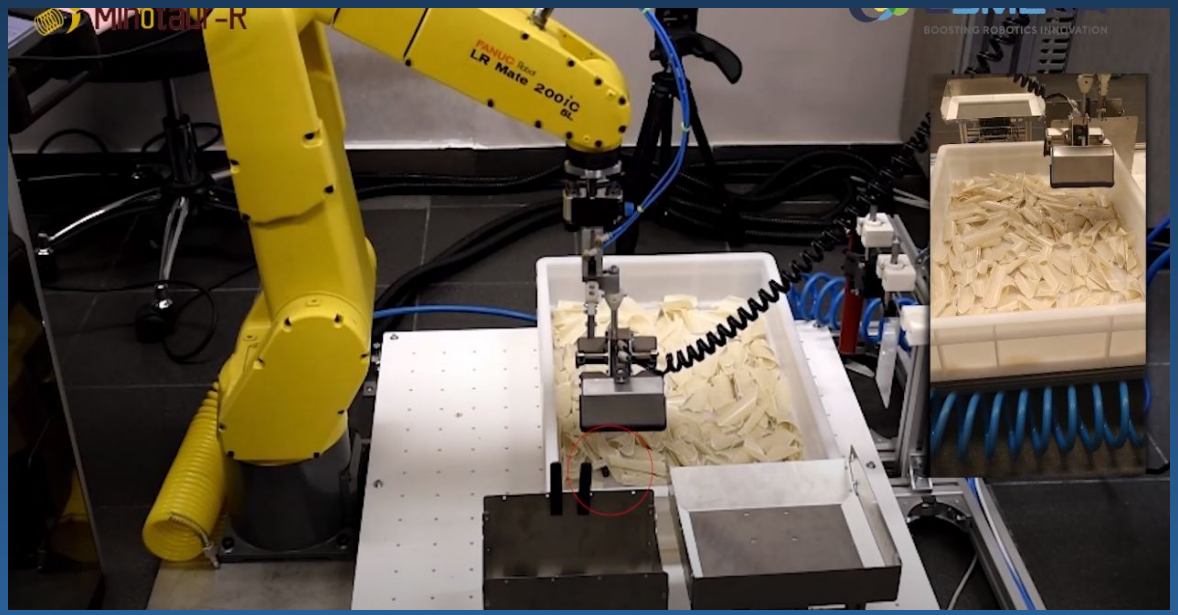
Role: Full stack lead software engineer
Developed the entire software stack & drivers for the project from scratch including:

- *6-Axis robot control driver*
- *CNNs for computer vision to detect springs/predict orientation*
- *Custom 2d->3d Mapping tool to calibrate inspection area*
- *Camera calibration tools*
- *Rendering engine / Graphs*
- *Network protocol for communication*
- *RGBD camera algorithms for depth estimation / Tiling / Calibration*
- *Tool support (depth sensor / gripper and so on)*
- *Software to implement sequences once and then adapt(~=stretch/fit) within any environment at runtime*
- *Multithread/GPU optimizations*
- *3D world partitioning editor*
- *GUI*
- *Graphs*

Code size : Approx 350KB +

Total Separate modules : 4 (Controller on the robot service , Robot Hub router , Computer Vision Service, GUI)
(all communicate through tcp low-level optimized protocol)

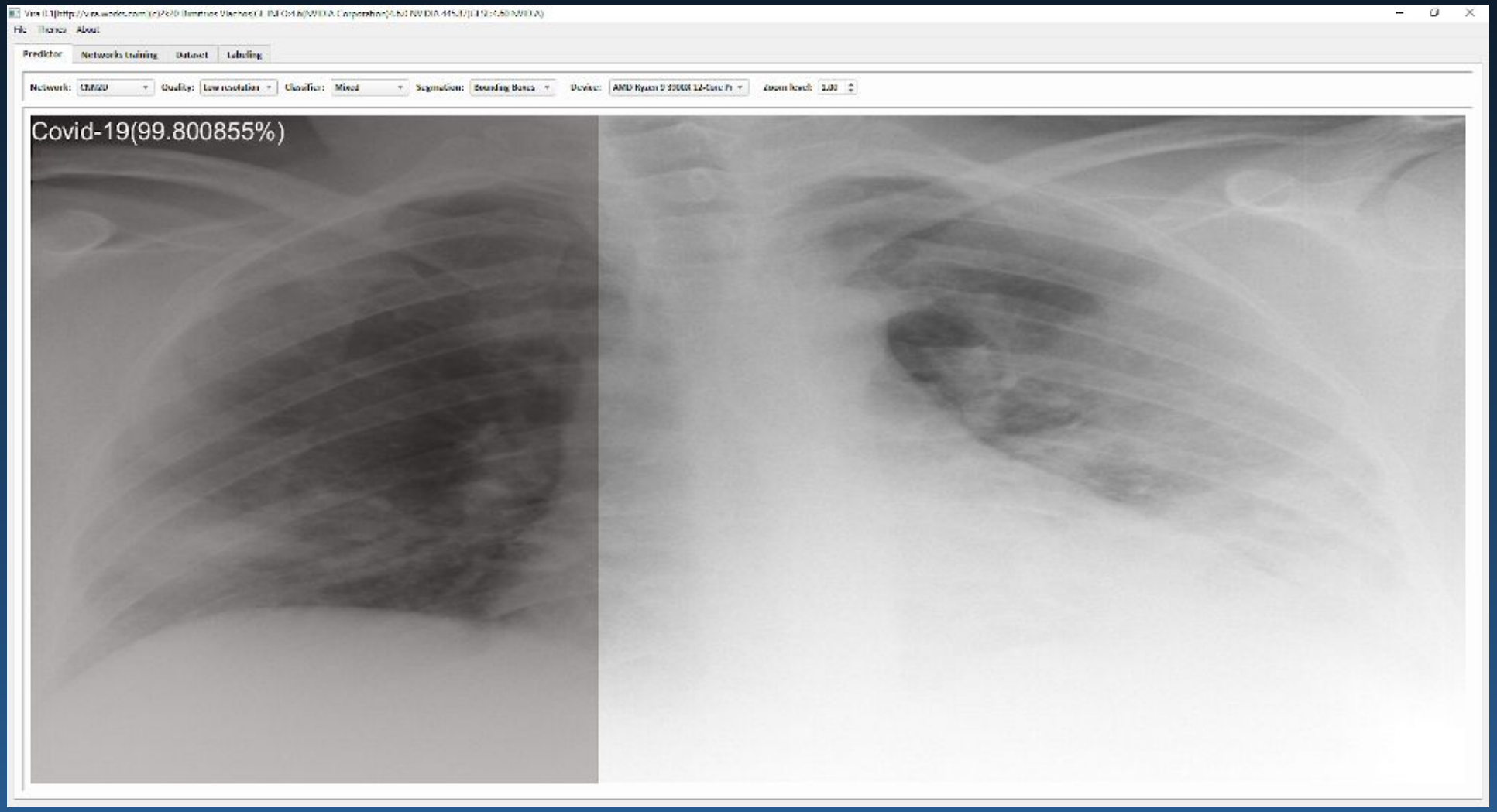
The entire project is written in C/C++ and some tools in C#/CUDA.



Completed Projects

Project name : "Vira"

Vira is a proof of concept software that uses Deep Learning to detect various lung infection types including Covid19.
The entire project is written in C++ & Qt for GUI.



Completed Projects

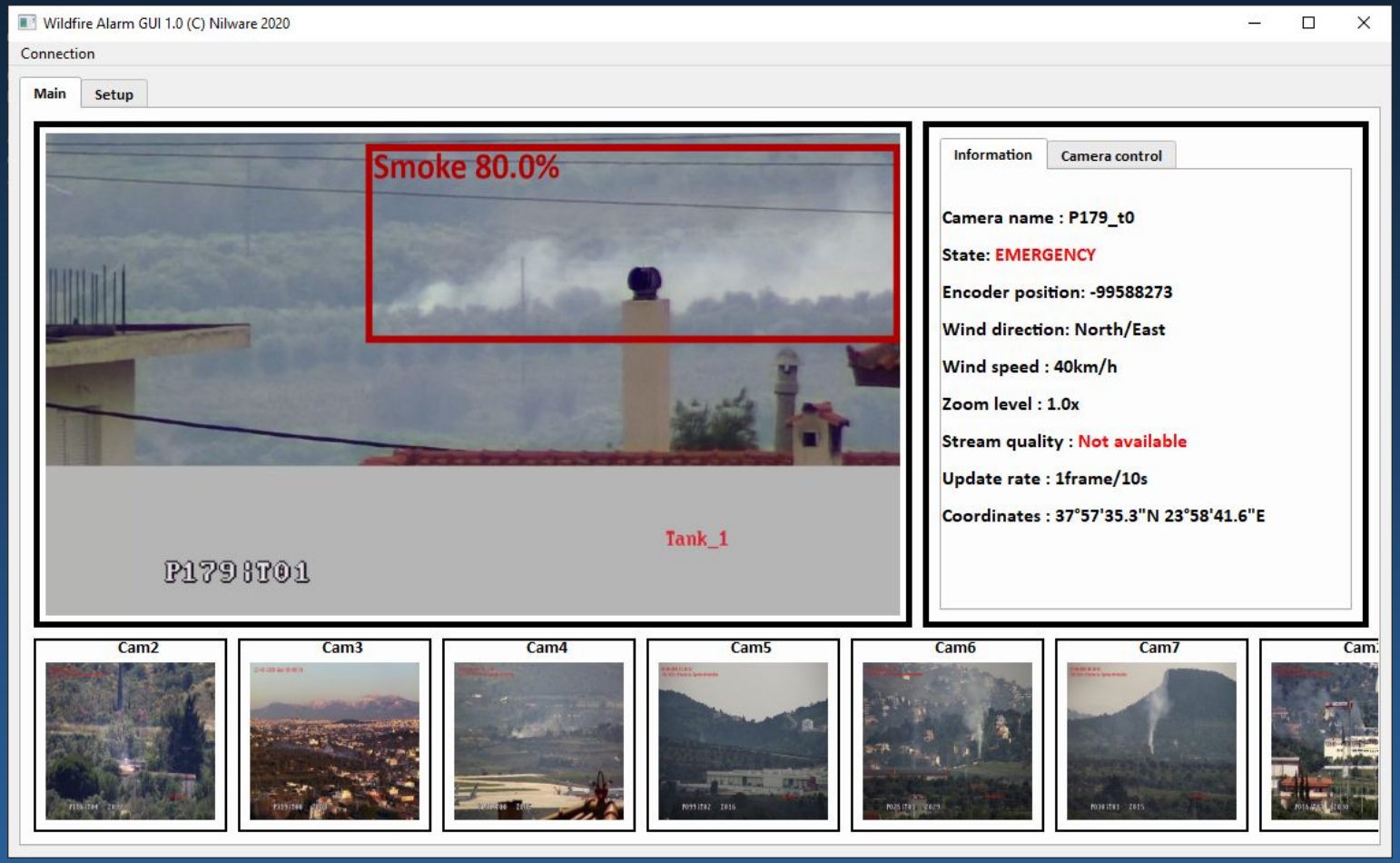
Project name : *"Shiptest"*
Website : *http://www.shiptest.eu/*
Description: *Shiptest is a Robotic crawler designed for Automated NDT inspection using various sensors(Olympus Phased Array , MicroEpsilon's profilometer) and algorithms(A/B/C/S Scan , Automatic Weld Detection / Classifier and so on).*

Role : *Full stack lead software engineer*
The entire project is written in C++ & Qt (gui). Code size : Approx 1MB

Completed Projects

Project name : "Wildfire alarm"
Description : Neural network based smoke detection from video footage

The entire project is written in C/C++/Qt/Python.



Completed Projects

***Project name** : "Friction Harmonics"*
***Website** : http://www.frictionharmonics.com/*
***Description** : Friction harmonics is a robotic solution for Kissing Bond defectsdetection.*
***Role** :*
Full stack lead software engineer
Developed the entire software stack & drivers for the

project including:

- *GUI Development*
- *FFT & Harmonics solver/detector*
- *TDMS loader*
- *Dynamic playback of sequences*
- *Graph display*

(The entire project is written in C/C++ & QT.)

Completed Projects

***Project name** : "Winspector"*
***Website** : http://www.winspector.eu/*
***Description** : Winspector is a robotic platform for advanced non-destructive testing (NDT) to in-situ blade defect detection.*
***Role** :*
Full stack lead software engineer
Developed the entire software stack & drivers for the project including:

- *GUI Development*
- *Robot Controller programming*
- *Motor controller programming*
- *Kinematics*
- *Editor for capturing motion sequences and stretch/fit them in any environment*
- *Network protocol implementation*

Code size: 400KB+
Total Separate modules : 3 (Robot hub , GUI controller , robot controller)
The entire project is written in C/C++.

Completed Projects

***Project name** : "SocketMaster"*
***Website** : http://www.socketmaster.eu/*
Description :
SocketMaster aims to provide amputees with personalized, optimized prosthetic sockets capable of being designed and manufactured in a short period of time.

Role:

In this project my task was to re-write completely from scratch the original code(C#) in C++ that handled the transformations & also to make it run on embedded device as fast as possible.

The entire project is written in C/C++.

Completed Projects

Project name : "CMDrive"
Website : http://www.cmdrive.co.uk/
Description :
The project goal is to establish the feasibility of the innovative use of a non-contact microphone array for structural health diagnostics by noise detection combined with active noise cancellation, for all the rotating machinery within an onshore wind turbine nacelle.

Role:
In this project I had to fix multiple bugs/issues present in the codebase along with optimizations.

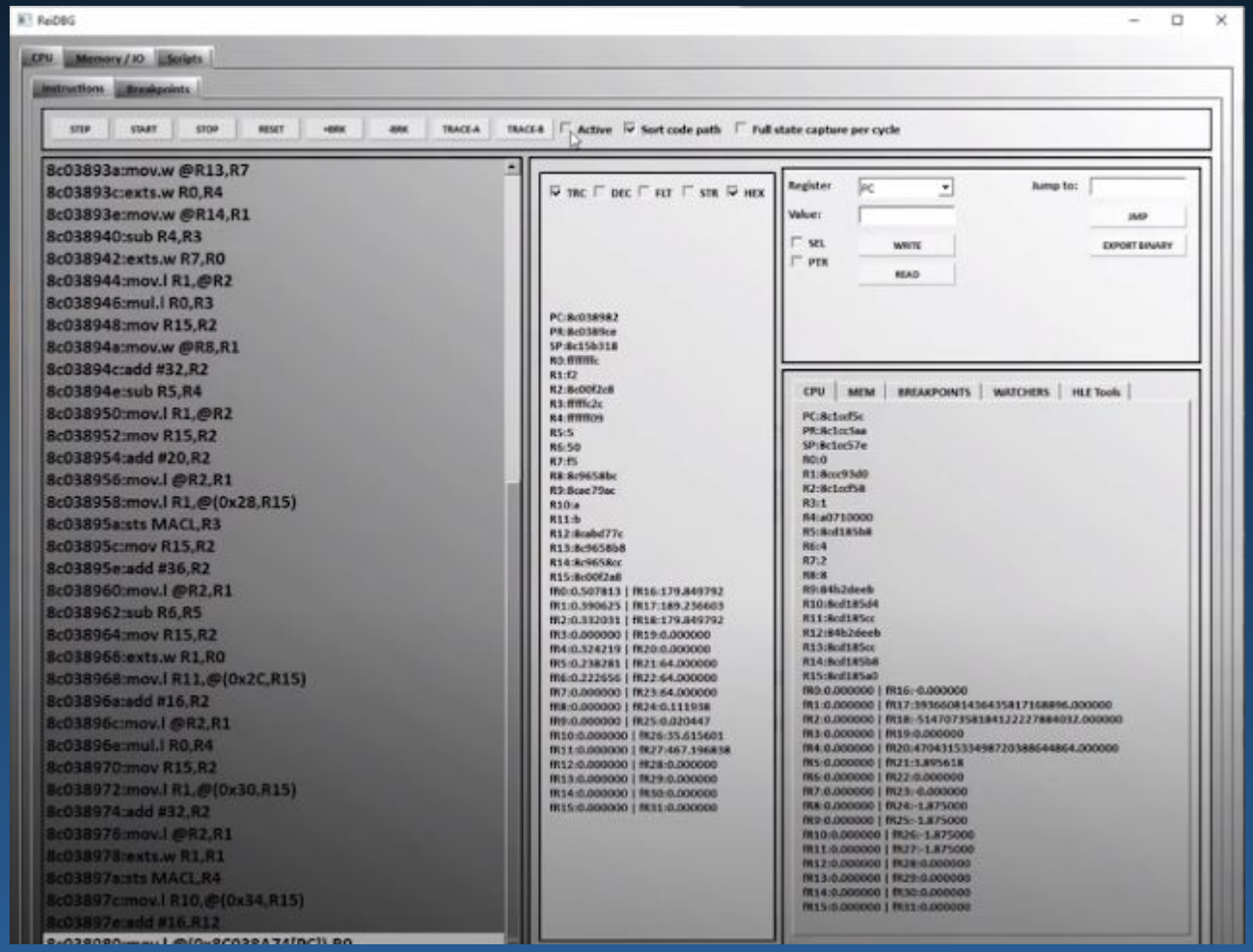
The entire project is written in C/C++.

Completed Projects

Project name : "ReiDBG"

***Website:** https://github.com/reicast/reicast-emulator/*
***Video:** https://www.youtube.com/watch?v=SSOJEpYrsFM*
***Description:**"A complete system debugger for the Sega Dreamcast emulator NullDC/Reicast"*

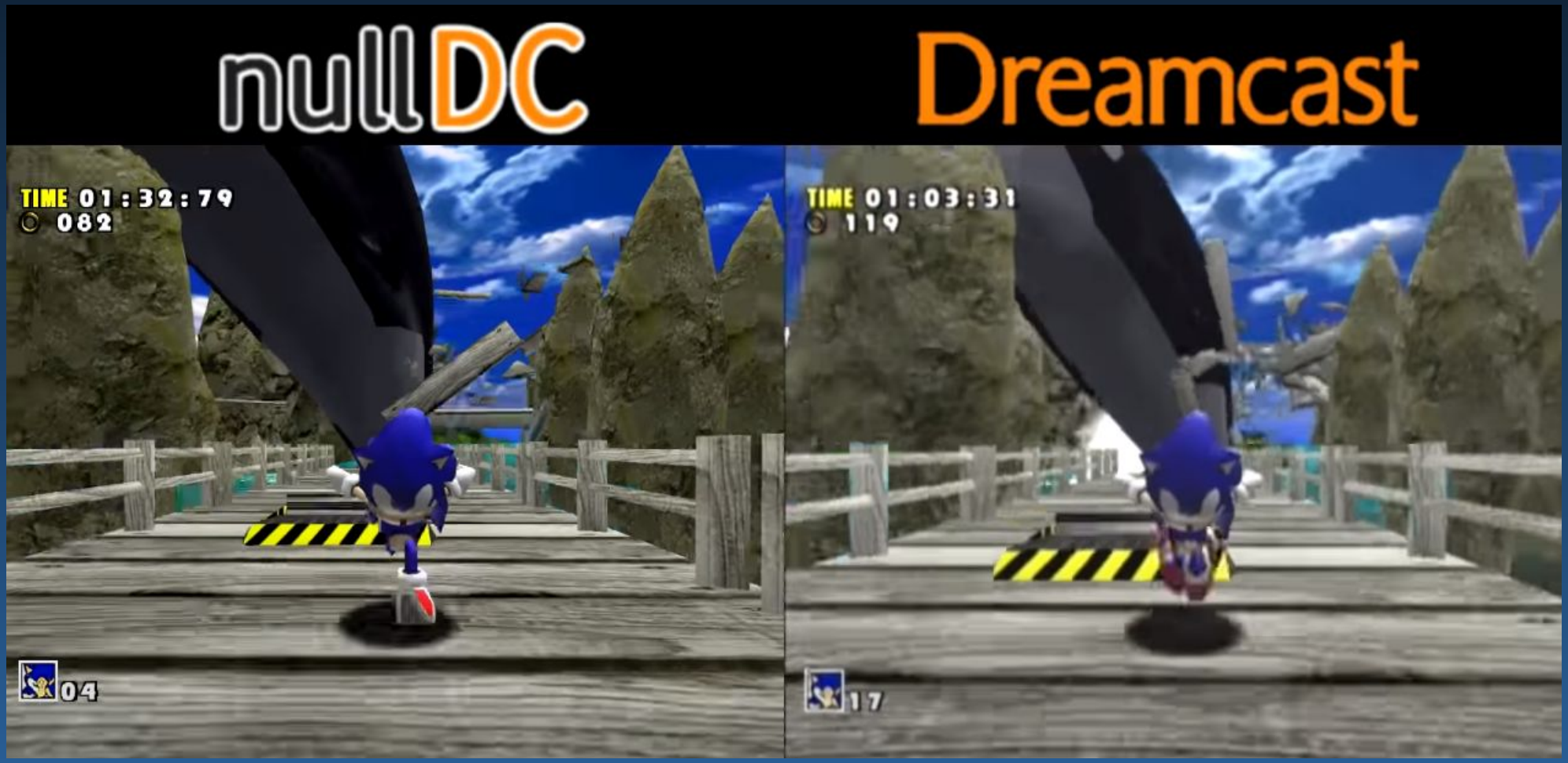
The entire project is written in C/C++/QT.



Completed Projects

Project name *: "NullDC"*
Website *: https://code.google.com/archive/p/nulldc/*
Company *: Nilware*
Description *: The fastest Sega Dreamcast emulator to date for Windows x86-64*
Role:
In the codebase I did took care of multiple reported issues , also implemented Caching system for the DirectX rendering engine along with JIT optimizations and some fixes.

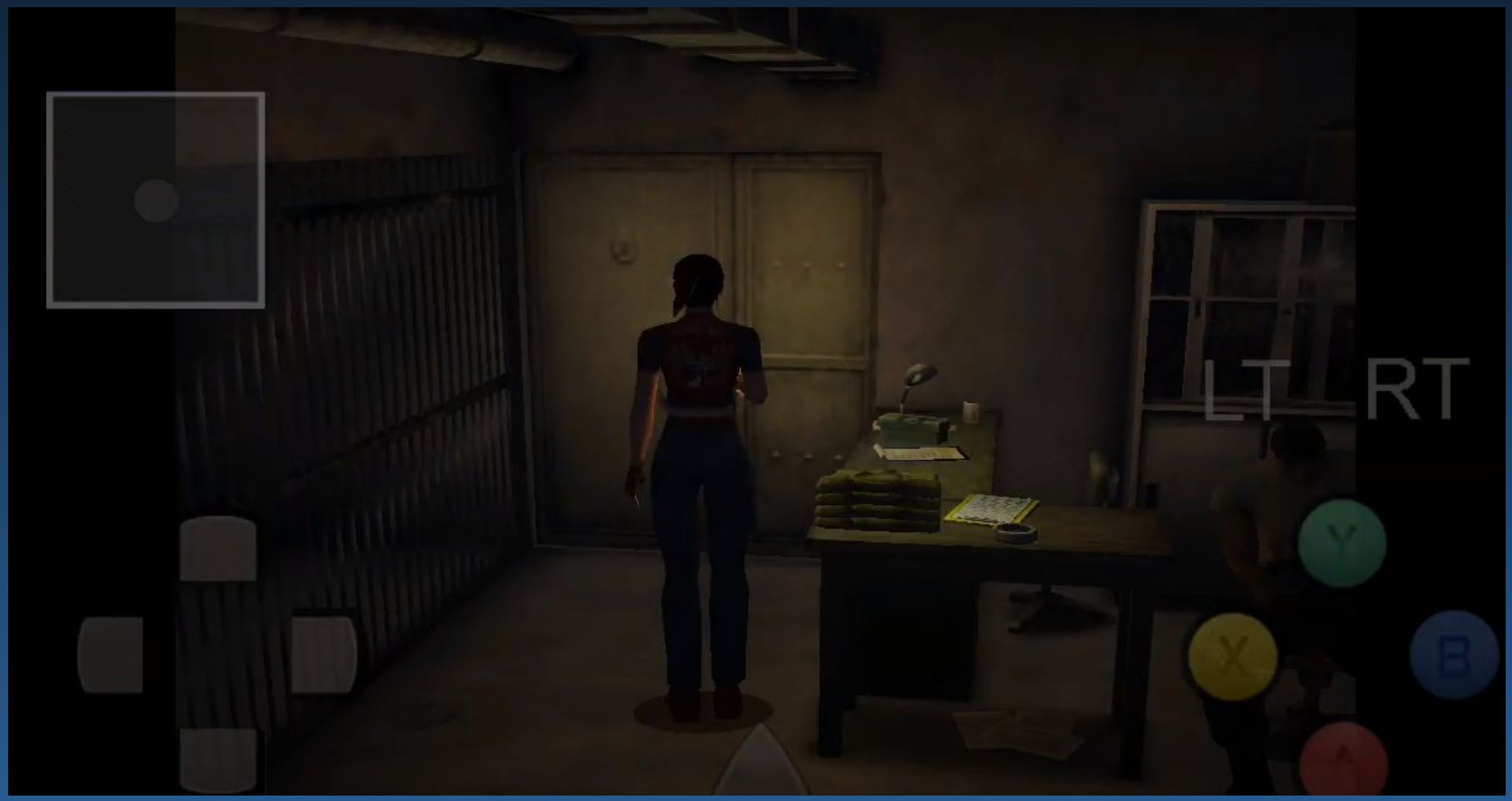
The entire project is written in C/C++.



Completed Projects

***Project name** : "Reicast"*
Website : https://github.com/reicast/reicast-emulator
***Company** : Nilware*
***Description** : A lightweight version of NullDC Dreamcast emulator running on Android,Windows,Linux,Mac.*
***Role**:*
Actively working on this project as maintainer. My tasks involve from basic fixes/porting to JIT Compiler / High level emulation & reversing.

The entire project is written in C/C++.



Completed Projects

***Project name** : "GNUBOY 64" - 2014*
***Website** : https://github.com/DimitrisVlachos/Gnuboy64*
***Company** : Non profit*
***Description** :*
The official port for the Gameboy & Gameboy color emulator for the N64 running in full speed with 90% of the renderer code being written in pure mips32 assembly.

***Role**:*
I'm the original author and maintainer of this port.

Thank you!

Thanks for your time , you may check my website for more information.
http://dvlachos.dev