Image Quality Tuning Design Services

arm

INNOWAVE
INSPIRE THE NEXT

ARM IP

+ Cortex-M
+ Cortex-A
+ Cortex-R
+ Mali Camera ISPs
+ Hardware Development Tools
+ Software Development Toolkit

OVERVIEW & GOAL

InnoWave has unmatched expertise in the world of vision and in-depth expertise in the areas of firmware development for video processing, embedded systems, and many others.

— We develop, port, and optimize custom imaging algorithms and deliver the most optimal solutions for various use cases.

— We deliver exceptional IQ performance by providing image quality tuning services which help reduce time-to-market significantly.

— Our end-to-end imaging solutions include custom camera modules design, image quality tuning, sensor drivers, and adapter board design.

— We provide deep expertise in machine learning and computer vision development services.

Arm collaborates with InnoWave on the Arm Mali-C32, Mali-C52, Mali-C55, Mali-C71AE and Mali-C78AE ISP platforms for multiple applications, such as automotive, industrial security cameras, smart homes, and drones.

CHALLENGE

Video images are typically first captured by a lens and sensor. These raw images may have noise from the environment, poor color, limited lighting, and many other issues:

— Lens distortion

— Luminance/color shading

— Leteral chromatic aberration (LCA)

— Resolution

— Geometric distortion correction

— Luminance non-uniformity

— Auto exposure (AE)

— Color/auto white balance (WB)

— Auto focus (AF)

— Sharpness

— HDR

— Exposure

— Motion blur

— Dynamic range

— Texture blur

— Stray light

— Fringing & blooming

— Blemish

— Dead pixels, and other issues that impact the image quality

APPLICATION AREA

+ Industrial
+ IoT
+ Automotive
+ Wearables
+ Smart Homes
+ Healthcare
+ Mobile Computing
+ Artificial Intelligence
+ Security
+ Smart Cities
+ Avionics
+ Transportation

We provide a complete imaging pipline which includes software drivers, image quality tuning, camera adapter board design, and other services.

Capabilities: Image Quality Tuning, Image Quality Product Testing, ISP Tuning, Camera Modules Design, Image Quality Software, Image Centric Hardware PCB Design/Fab/Assembly.

The following is a list of some of our image quality design services:

— ISP tuning for various camera parameters — color and white balance accuracy, sharpness, noise, tonal response, dynamic range, optical distortion, and so on.

— Camera characterization (shading, distortion) and calibration for both intrinsic and extrinsic parameters.

— 3A tuning and algorithms: Auto exposure, auto white balance, auto focus, HDR, low light, LED flash, and more.

— Low light image/video enhancement.

— Custom image recognition algorithms.

— Custom noise removal, EIS, array camera and other algorithms.

— Objective and subjective image quality analysis.

— Image quality tuning for human vs. machine vision.

FURTHER RESOURCES

— innowave.design

— innowave.design/image-tuning

— innowave.design/cameramodules