Fyusion Cracks the Code on Making Machine Learning Work on Any Mobile Device
…and They Just Shared that Code with the World

In a quest to make machine learning more accessible, world class engineers at Fyusion release lightweight library for running machine learning models on Android, IOS and more platforms.

SAN FRANCISCO – March 7, 2023 – In the machine learning world, making models run across a variety of mobile phones is notoriously challenging. This is why Fyusion, a visual intelligence company owned by Cox Automotive, has delivered a powerful new open-source library that makes it easy and efficient to run machine learning models on almost any mobile device. Now available on [GitHub](#), this lightweight yet powerful software library called FyuseNet can take a wide variety of machine learning models and write incredibly fast implementation for whichever platform the developer chooses—all while maintaining a lean application.

"At Fyusion, we live at the intersection of high-tech research and pragmatic engineering, bringing big ideas to life in a way that can truly benefit people around us," said Stephen Miller, Fyusion Co-Founder and Chief Product Officer. "We know how powerful FyuseNet is, as we've used it for years in our own work, and we believe that this can be the one beautiful library that everyone uses to accelerate advancements in machine learning."

With stark differences between operating systems, as well as fragmentation across older and newer generations of phones, creating machine learning models for mobile phones has been notoriously inefficient. This has led to innovations mostly being reserved for the $1,000+ flagship phones that are out of the reach of many people.

However, the team at Fyusion is on a mission to democratize machine learning and ensure that these technologies are more accessible to more people. That's why it was important to them to open access to FyuseNet, as its lightweight implementation makes it compatible with the majority of devices—regardless of manufacturer or specific processor details—even when there's no network connectivity available. Created in 2016 for internal use, FyuseNet has been iterated on for years within Fyusion before making its inaugural appearance on GitHub this year.

The Technical Details:

FyuseNet is an OpenGL(ES) based library that enables the running of neural network inference on GPUs that support OpenGL and OpenGL(ES). The library was written in portable C++ and runs on a variety of desktop, edge and mobile platforms. FyuseNet is made freely available under the MIT License.

In order to deliver the performance required to run in real-time, the developers integrated a number of tweaks into the library, with the most important being the ability to fuse some operations in a single layer/shader. A second trick that FyuseNet employs is to make use of the raster operation processors of the GPU. This has the added benefit of getting some arithmetic operations essentially for free, as it does not change execution time within the shader. The runtime has no notable external dependency aside from OpenGL, so users get clean, simple, extremely portable code.

"When we founded Fyusion, one of our goals was to take our team's immense technical expertise and use it to solve real world problems facing everyday people," added Radu Rusu, Fyusion Co-Founder and CEO. "And since innovations in machine learning happen quickly, we believe that making FyuseNet freely available will help us build a wider community of developers who can collectively contribute as discoveries are made and ensure that even more people can benefit from it for years to come."

Based in San Francisco, Fyusion employs some of the world's top researchers and developers in machine learning and AI, helping customers view and analyze millions of 3D automotive images every year. Acquired by Cox Automotive, the world's largest automotive services and technology provider, in 2020, Fyusion remains on the cutting edge of computer vision advancement, leveraging software, imaging technology, sensors and services to extract actionable insights from visual data.

As a part of Cox Automotive, Fyusion has delivered the wholesale automotive industry's only AI technology that uses 3D imaging to look at vehicle damages from every angle. Fyusion's technology is used in both mobile and fixed imaging solutions to capture millions of used vehicles each year for the world's largest wholesale marketplace, Manheim. Together, Fyusion and Manheim are using the same technology in FyuseNet to deliver the automotive industry's most advanced automated damage detection solution for used vehicles.

About Fyusion
Fyusion is a computer vision company that builds cutting-edge solutions for automotive inspections, automotive imaging, and related applications. Backed by over 150 patents and patents pending, Fyusion is a pioneer in turning visual data into actionable information. Our San Francisco-based company includes some of the world's top researchers and developers in machine learning and AI. Founded in 2014, Fyusion is a Cox Automotive™ brand. For more information, visit www.fyusion.com.

About Cox Automotive
Cox Automotive is the world's largest automotive services and technology provider. Fueled by the largest breadth of first-party data fed by 2.3 billion online interactions a year, Cox Automotive tailors leading solutions for car shoppers, automakers, dealers, retailers, lenders and fleet owners. The company has 25,000+ employees on five continents and a family of trusted brands that includes Autotrader®, Dealertrack®, Kelley Blue Book®, Manheim®, NextGear Capital™ and vAuto®. Cox Automotive is a subsidiary of Cox Enterprises Inc., a privately-owned, Atlanta-based company with $22 billion in revenue. Visit coxautoinc.com or connect via @CoxAutomotive on Twitter, CoxAutoInc on Facebook or Cox-Automotive-Inc on LinkedIn.

Media Contacts:

Julie Zorn Shipp, Sr. Manager, Public Relations, Cox Automotive
404-558-7837 or julie.shipp@coxautoinc.com

Kelsey Guy, Sr. Marketing and Communications Manager, Fyusion
(214) 538-2301 or kguy@fyusion.com