Neural Networks: Current Trends in Industry

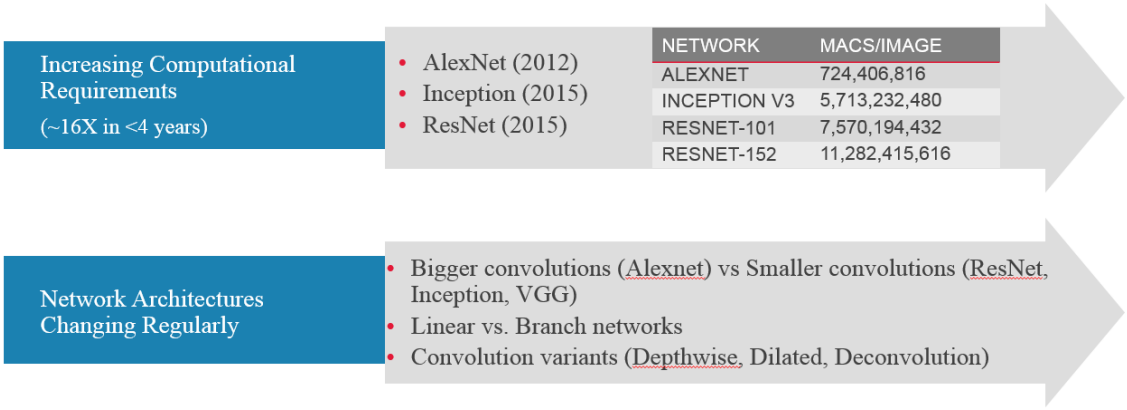
Megha Daga, Cadence Design Systems

Machine Learning and Neural Networks have experienced an accelerated growth in recent years, making their ways into various commercial products across many industries. The industries are facing dynamic set of challenges with the continuous evolution of customer needs. Each of these commercial products need to sense their surroundings, think, reason and take appropriate actions. This is where NN technology complements rather than replace the existing non-NN computer vision based technology. This talk will delve into trends, hardware and software challenges and few industry solutions.

In the world around us, we are using Neural Network everyday everywhere starting from games like Pokemon to commanding Alexa to add a meeting to our calendars.

The trend which is seen in all these market segments is the need for **Neural Network to go local**. With Neural Network going local the common requirements from all these markets are low power, high performance, low area solution. The continuous evolution of Neural Network applications adds on a demand for the solution to be highly flexible and programmable. The need for low power, high performance, sophisticated memory

management, programmability, flexibility and scalability demands for an embedded solution and a software ecosystem.



Neural networks are getting more and more complex and hence there is a requirement for code automation and smooth deployment on the chips. A mobile market is much more dynamic with the app developers and hence requires a dynamic solution; whereas other industries like automotive and surveillance are more security driven and have closed networks demanding an offline compiler solution. With the automated code generation industry also needs an ecosystem like OpenVX, OpenCL to deploy the mix of computer vision and Neural networks effortlessly and efficiently on their chips.
To conclude, with the trend of Neural Networks going local, we see a big need in shift of processing onto embedded devices with an efficient software ecosystem. One such example is Cadence Tensilica Vision C5, a dedicated standalone Neural Network processor with a powerful software ecosystem to support an efficient distribution.

Author
Megha Daga, works at Cadence Design Systems, Inc. as Sr Technical Marketing Manager in the Vision and AI group. Megha's focus and passion is to research customer needs in computer vision and AI to create industry leading solutions on Cadence Vision and AI IPs. Megha enjoys learning from customer’s experiences and fellow researchers in AI. Her R&D background coupled with her current marketing role gives her a unique perspective about the AI industry.

Contact
Email: mdaga@cadence.com