

END OF MOORE'S LAW: THE EMERGENT RECONSTRUCTION OF AN INDUSTRY

1. On 2015 the so called Moore's law turned 50 years old. Moore's law stated that the number of transistors on an integrated circuit doubles every two years.
2. The same year it was shown that the cost per transistor stopped following an exponential decreasing trend, and had stagnated from the 28 nm node on.

These two points combined prescribe a strong problem for an industry accustomed to exponential growth. We can either:

- a) Get used to exponentially more expensive integrated circuits
- b) Witness the end of the Moore's law

The last two years saw the start of the second option. Intel and other companies started to announce increasingly delayed miniaturization deadlines, and from these delays, the competitive advantages that existed before 2015 are starting to erode.

We look for an M. Sc. Student who wants to understand:

- i. What happens in an industry once exponential growth stops? Is it:
 - a. New industry and product architecture?
 - b. New product benchmarks?
 - c. New incumbents?

We hope to start this project soon, but we do require students with a B.Sc. in Electrical engineering (ITET) or Informatics (INFK), as an understanding of computer architecture is fundamental for the good completion of this thesis.

This thesis should aim at giving an initial understanding of:

- i. Which are the stronger industry changes in terms of architecture and centrality?
 - a. Who were the incumbents before the costs started to rise, who are the new entrants?
 - b. Which product architectures were dominant before, and which emerged now?
- ii. How did forecasting in the industry changed?
 - a. Moore's law was used before, what now?

*This project will be supervised by Jose P. Arrieta and Axel Zeijen.
We look forward to working with you!*

Contact

Please contact Jose P. Arrieta (jarrieta@ethz.ch) in case you are interested in working with us.

References

- <https://www.intel.com/content/www/us/en/silicon-innovations/50-years-of-moores-law-video.html>
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