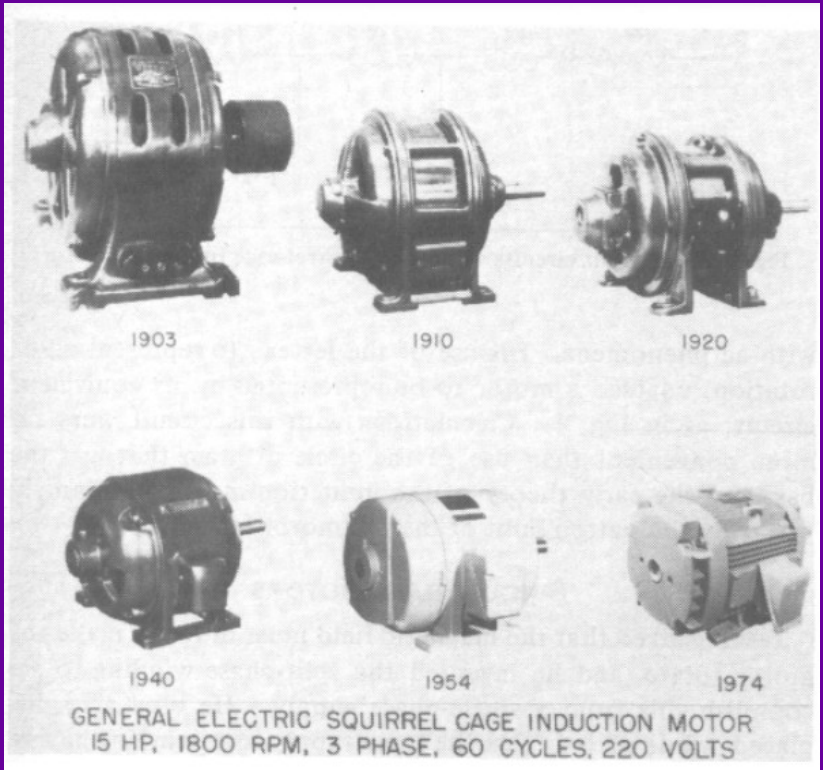
A brief introduction to programming for Electrical Engineers

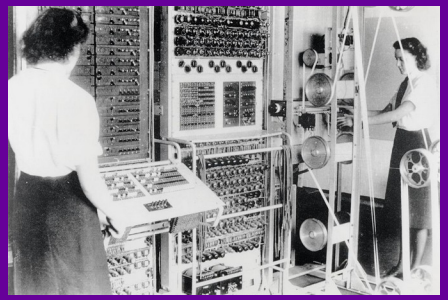
By Dr Hermilo Ceron

Evolution of the induction motor



Philip L. Alger and R.E. Arnold, "The history of induction motors in America", *Proceedings of the IEEE*. 64, 1380–1383. (1976).

Evolution of the computer



1943

1952

1960

1978

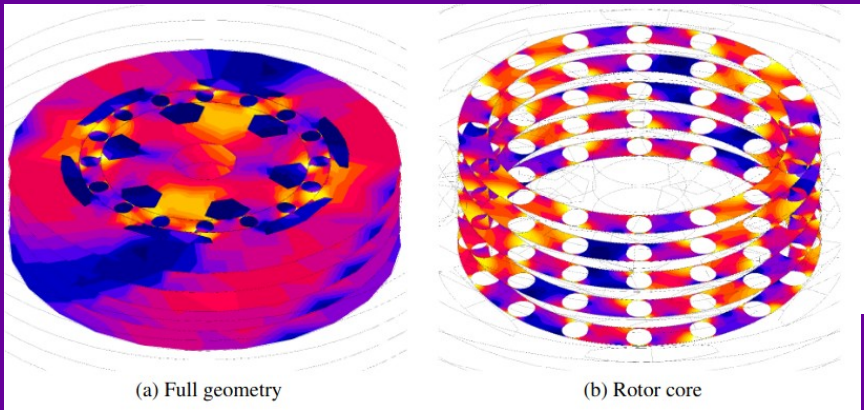
1983

1990s

- What´s different?
- What do they have in common?
- Are those technologies mature?
- How engineers at the first half of the last century survived without computers?

Graphical methods

- Simple
- Good
- Fast



(a) Full geometry (b) Rotor core

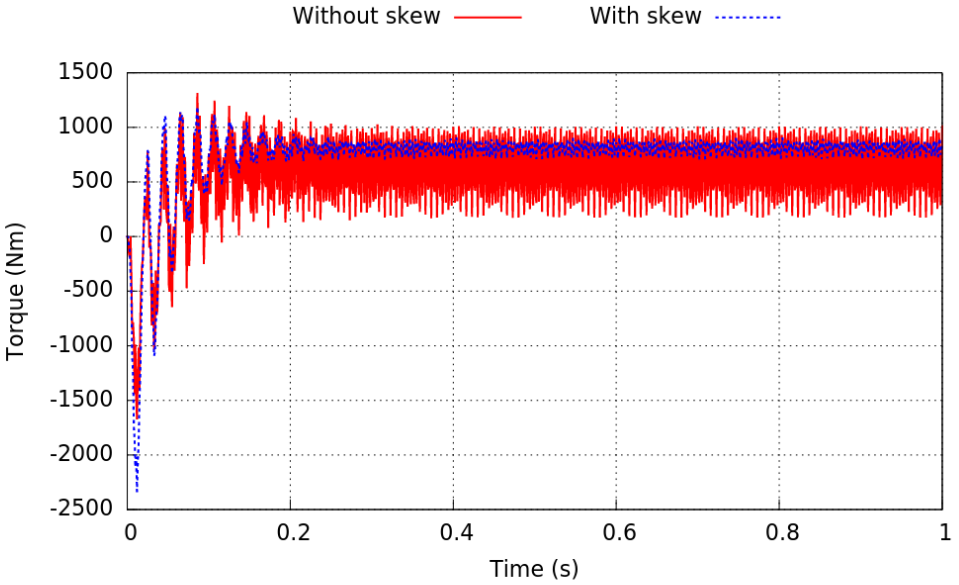
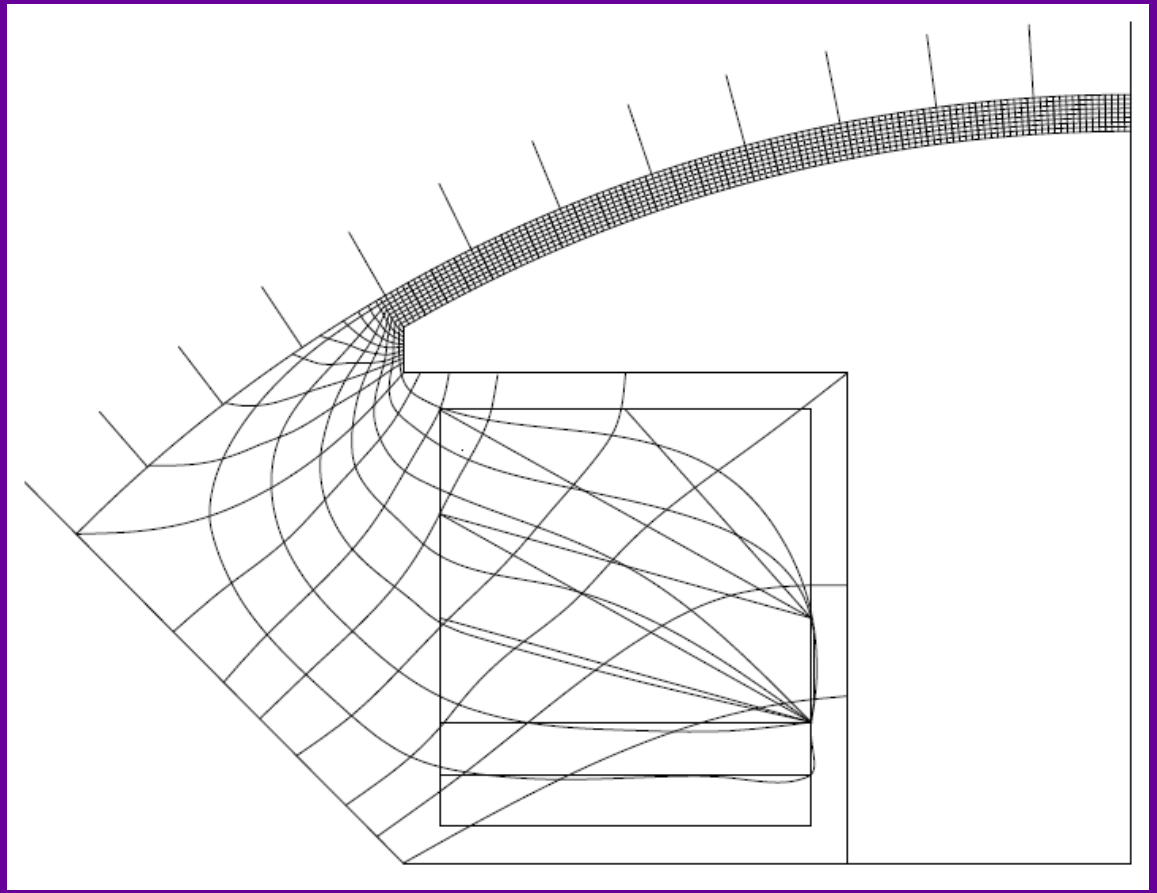


Figure 4.27: Transient simulation of the double modular stator induction motor

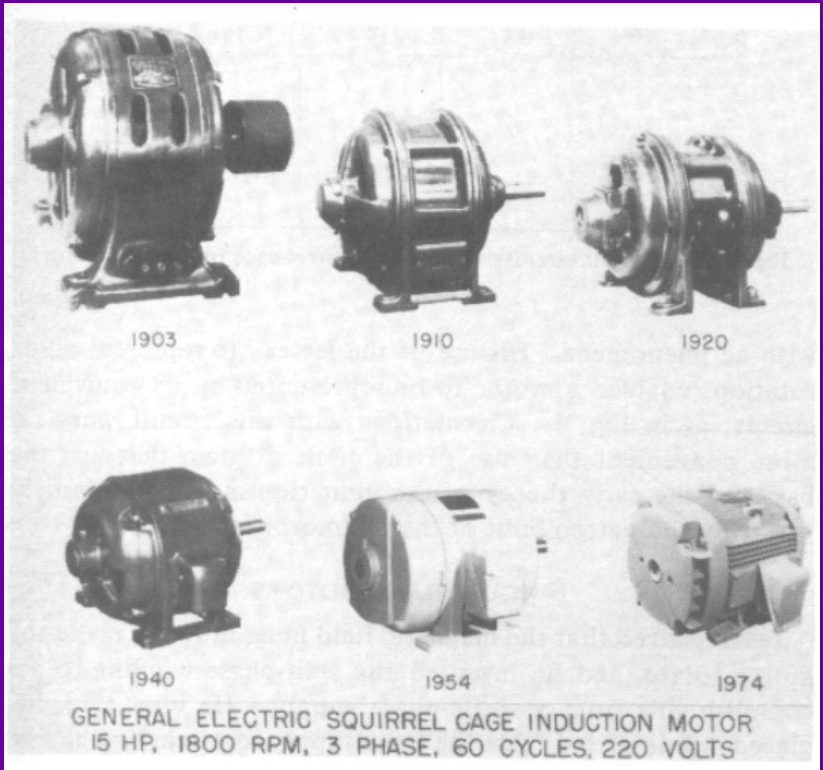
Stevenson A. R. Jr., **Park** R. H., "***Graphical Determination of Magnetic Fields, Theoretical Considerations***", AIEE Transactions, Vol. 46, Jan. 1927, pp. 112-135.

- Draw equipotential lines
- Draw flux lines
- Check curvilinear squares
- Repeat

Few iterations later...



Evolution of the induction motor



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- Very interesting but … What about programming?

Start coding!

- You have a defined method to solve a problem (After reading the full paper)
- It is a iterative process
- Could it be extended to 3D?

Thanks!