Computer Oriented Higher Education in Hungary – The Beginnings

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Early Digital Computing in Eastern Europe

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The beginnings

In Hungary, the history
of computer-oriented higher education
started in 1957
when Prof. ***László Kalmár*** launched the
Applied mathematicians course
at the University of Szeged (**Szeged School**)
The author graduated in the second year of it

She is now the eldest (living) Hungarian
high-educated programmer

From the backgound

Trends in the development of computing in Hungary:

1. ***computer science („cybernetics”)***
   - in 1957 **M-3** was build by KKCS
   - in 1957 was found the „**Szeged School**” by László Kalmár
2. ***administrative data processing*** *linked to* Central Statistical Office (KSH)
   - from 1953 it supervised the distribution of punch card machines
   - from 1960 it organised computer training courses
   - in 1969 established **Számok -** from 1971 **comp. trainings courses**

In 1968 the goverment **Central Computer Development Program** prescribed: **1971-75 to lay down the basics of computer culture**

The beginnings – the first institutions and *courses*

- **MTA KKCs** **1957- :** build M-3 **and** cradle of Hung.Comp.education
- **SZTE/JATE** **1957/58:** *Applied mathematics* (6-15 students/year)
- **Marx KKE** **1960/61:** *Plan-mathematician economist* (~20 st./y)
- **SZÁMOK** **1971-80:** ***comp. trainings*** (80.000 st. in 10 years) lifelong learn.
- **Kandó Coll.** **1970/71:** *Computer technician* (~30 students/year)
- **Dunaújváros Coll.** **1971/72:** *System engineer* (~30 students/year)
- **science-universities (ELTE, KLTE, JATE)**

1972/73:*Programmer mathematician* (50 students)

ELTE (Budapest) **1975/76:** *Program developer mathematician*

JATE (Szeged) **1979/80:** *Program developer mathematician*

KLTE (Debrecen) **1988/89:** *Program developer mathematician*

László Kalmár in Univ. of Szeged

Professor László Kalmár (1905-1976)

1920s: interested in mathematical logic

1950s: turned to computer science

1956: László Kalmár's ***famous seminar***
on **applications of mathematical logic**

1957: Kalmár designed the ***Kalmár's logical machine***
then ***Kalmár's formula-driven machine***

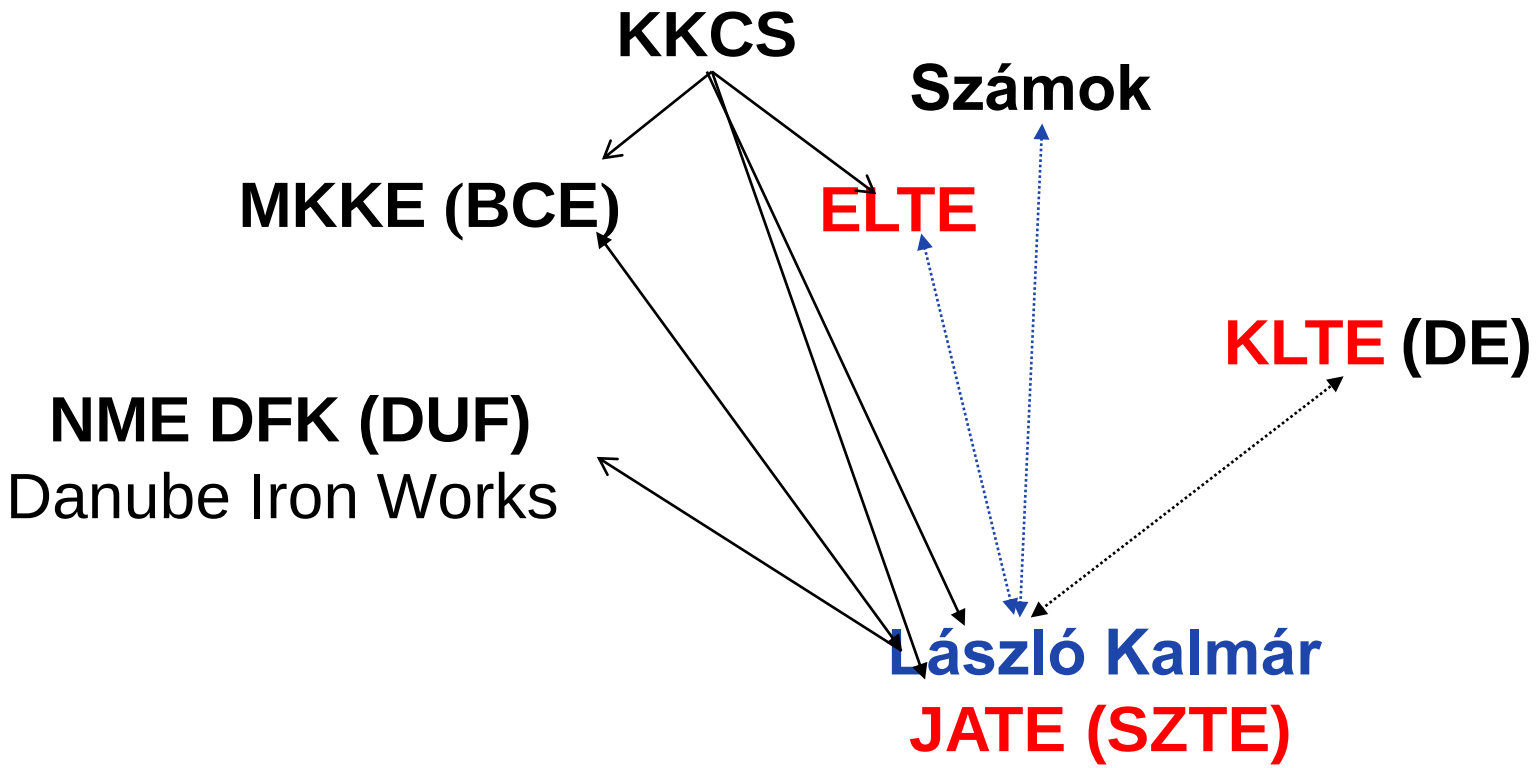
1956-57: Dániel Muszka built the ***Electronic Ladybird***

1957: ***Applied mathematics course, „Szeged School"***
was launched (with 3 students)

Living catalyst between disciples of the science as far as the researchers, lecturers and users of computer sciences

1996: **László Kalmár** received ***Computer Pioneer Award*** *from IEEE Computer Society*

Connection network of László Kalmár and KKCS



The Kalmar's logical machine (1957)

Muszka's Electronic Ladybird (1956-57)

Hungarian methods of teaching programming at JATE and ELTE

JATE (László Kalmár): - Szeged School

- ***Kalmár's fictive computers*** *(3-, 2- 1-addressed) then*
- he defined set of ***unique commands*** *(add, subtract, move, go to)*
- ***illustration of cycle commands*** with a servant carrying water in a can, changing of cycle variable with pebbles …
- ***flagged figures*** for understanding of ALGOL programs
- ***important to teach using tangible objects*** *that helped understand practical tasks* (experimental physics was aéso in the curriculum)

ELTE (Ákos Fóthi): - Programmer mathematicians course

Relational programming models as basis of *programming:*

- a **task** is a relation that orders points of a state space to others…
- *a* ***program*** *maps* a series of points of state space ….→ *program function*
- this helps **prove the correctness** of the program, too

Computing education at technological universities and colleges – the beginnings

1960s: in technological universities and colleges launched application-directed, *applied computing subjects*

- students with computing skills required for their professions
- problem-solving ability specific to their fields of expertise
- ability to apply the computing skills in their problem-solving

Budapest Technology University (BME)

Faculty of Electrical Engineering (VIK):

- one of the founders of the Faculty is **László Kozma**
- 1956-58: built the first Hungarian programmable (relay-based) computer, **MESZ-1** which was used in education and for scientific research for **ten years**

László Kozma at BME VIK

Professor László Kozma (1902-1983)

- Late 1930s: **patents on computing devices based on electromechanical relays** (Bell Lab. Belgium)
- One of the author of „prison letter” (in Hungary)
- 1955: built the first Hungarian programmable (relay-based computer), **MESZ-1** for education purpose

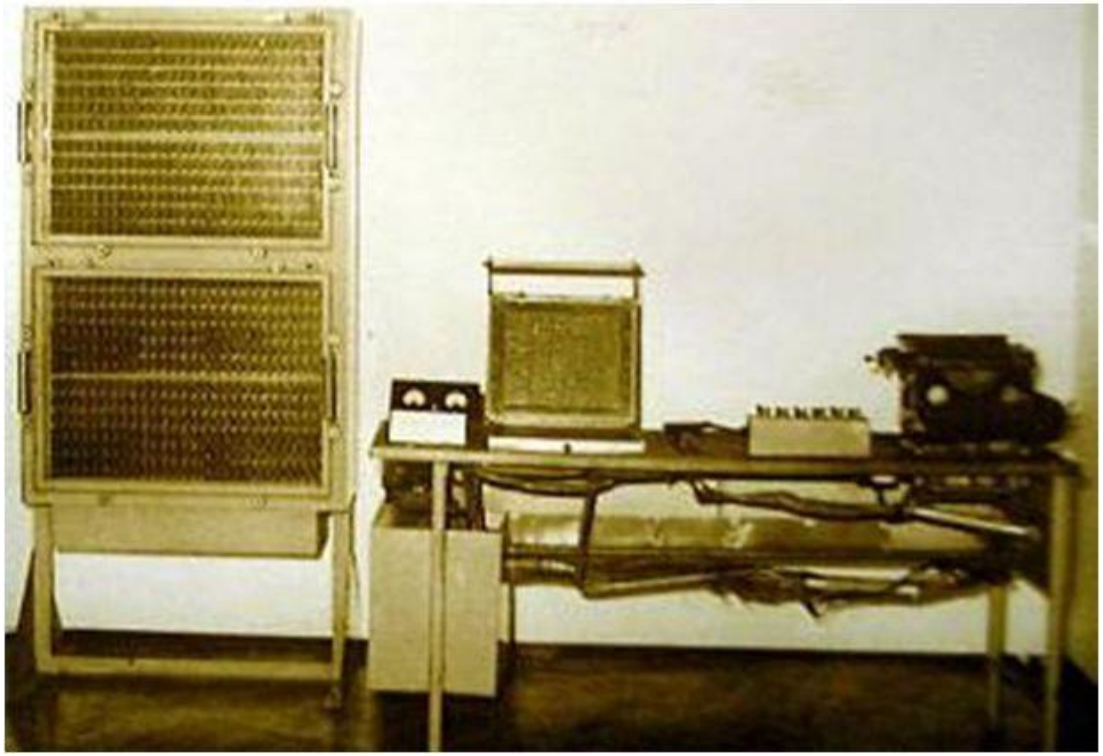
1996: **László Kozma** got

Computer Pioneer Award *from*

IEEE: Computer Society

IEEE Computer Society Pioneer Award in 1996

Kozma's MESZ-1 (1956-58)



Evolution of computer education at Budapest Technology University (BME) VIK

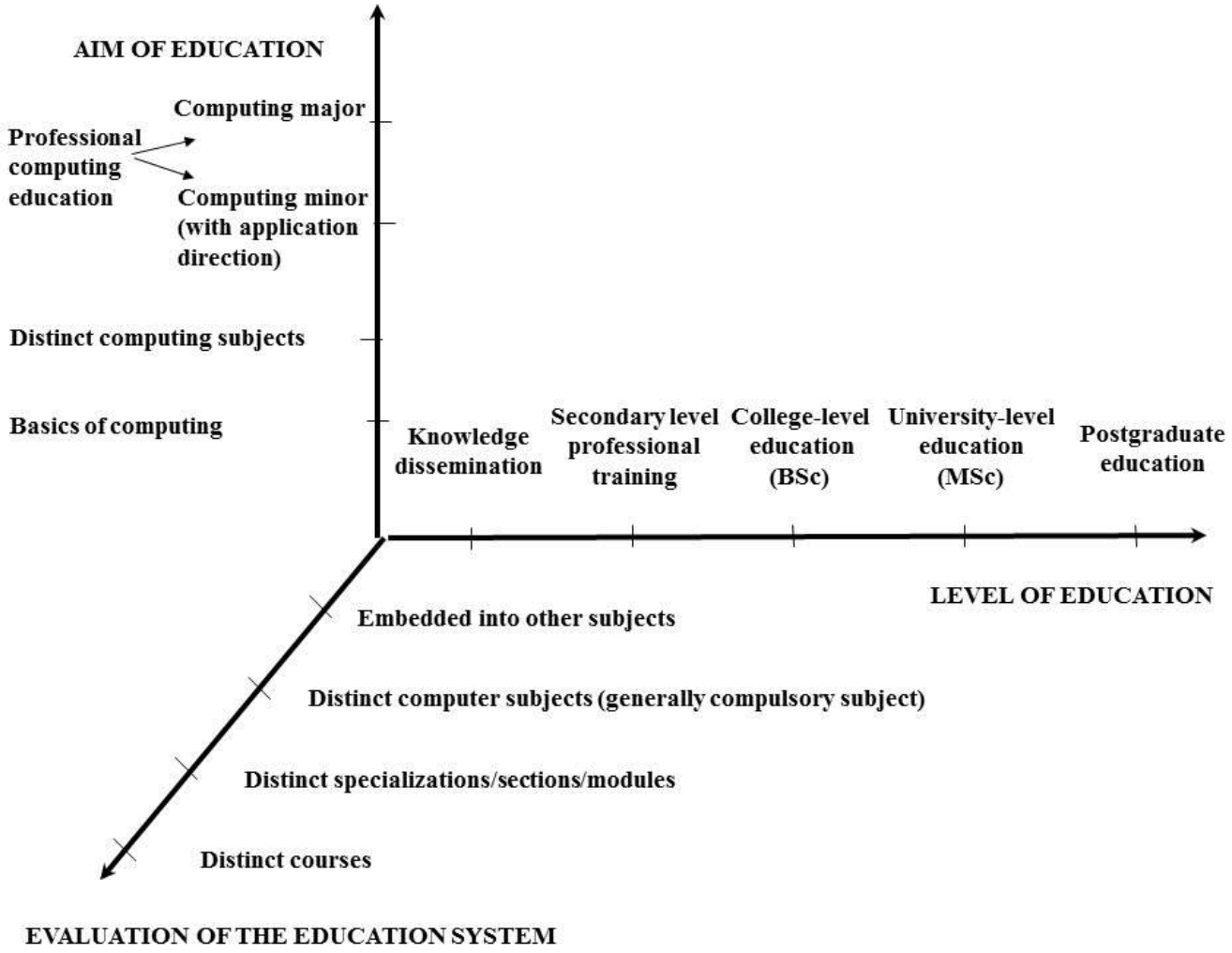
- ***Strict curricular education rule* at BME**: ***the entire curriculum for the whole duration (i.e. 5 years) of the course had to be prepared by the time the course started.***
- ***Evolution of the palette of computer education at BME VIK***
  - First facultative optional subjects: 1959/60: e. g.: *Analogous computers, Development of computer systems*
  - First compulsory subjects in 1964/65: *Automation and computer,* in 1969/70: *Programming of computers*
  - First distinct specializations in 1969/70: *Digital computing section*
  - First distinct courses
    - 1963/64: *Control engineering specialist - postgraduate course*
    - 1986/87: *Informatics course* (diploma: *Engineering informatics*)
    - 1991/92: *Engineering informatics course*

History of evolution in Hungary of *Engineering informatics course*

- **in the BME Faculty of Electrical Engineering (VIK):**
  - 1986/87: *Informatics course*
  - 1991/92: ***Engineering informatics course***
    became the *national* ***university standard***
- **in the Kálmán Kandó Technical College**
  - 1987/88: ***Informatics course***
  - 1988/89: ***Engineering informatics course***
    became the *national* ***college standard***

By the time **1993 all technological universities and colleges** have launched ***Engineering informatics course***

The state-space of the evolution of forms of education in Hungary



History of preparation of the survey book on Hungarian computer education (2009-11)

- **IT History Forum (iTF)** was founded in 2009 within NJSZT
- At one of events of iTF **sharp debate about the beginnings** – what can we do?
- The author made a decision: **information should be gathered while the persons in question are still alive**
- Versions of the study were uploaded to the NJSZT-iTF website – for **credibility**, to discuss the material
- The study took **3 years**
- By contacting the friends of friends and writing many letters we could find **130 contributors**: contemporary and present day teachers, researchers, and librarians. So the material is a **collective creation**
- The material does not provide a complete picture of the beginnings (e.g. law and medical universities are misses)

‘*Computer Oriented Higher Education in Hungary – The Beginnings’ Typotex Bp.*

- Typotex (Budapest) published the book in 2011 (p. 366) *http://www.interkonyv.hu/konyvek/santane_toth_edit_a_szamitastechnika_felsofoku_oktatasanak_kezdetei*
- begins with governmental and social background
- provides insight into the everyday lives of 30 institutions (summarizes the features of universities and colleges in 4 tables)
- describes the professors’ relationships and their contemporary meetings and conferences
- name-index containing 300 names (mostly contemporary person’s)
- 500 definitive contemporary articles, textbooks and technical books are listed - published until 1980

About the Data Archive (*itf2.njszt.hu*)

- From 2013: ITF History Forum has been compiling a

  Data Archive which can be found in the website of iTF:

- **Sections of Data Archive**: **Persons, Institutions, Products, Events, Writings, Videos**
- **Half of the 300 persons** in the name-index of the book can be found the **Who is Who** or **Who aren't with us** subsections of **Persons**

Hungarian proverb:

If you don’t respect the past,
you don’t deserve the future

OR:

There is no future without the past

itf2.njszt.hu