COMPUTER ORIENTED HIGHER EDUCATION IN HUNGARY – THE BEGINNINGS

Edit Sántáné-Tóth

Óbuda University, NJSZT

santane.edit@gmail.com

Early Digital Computing in Eastern Europe
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 background

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 governent **Central Computer Development Program** prescribed: **1971-75 to lay down the basics of computer culture**
The beginnings –
the first institutions and courses

- MTA KKC 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
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

- KKCS
- Számok
- ELTE
- KLTE (DE)
- MKKE (BCE)
- NME DFK (DUF)
  - Danube Iron Works
- László Kalmár
  - JATE (SZTE)
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 aéső 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
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)

- 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