

Curriculum Vitae

1 General

1. Name: Jüri Kiho
2. Date/place of birth: 02.08.1941 / Tartu
3. Citizenship: Estonian
4. Family status: married, three children
5. Address, phone, e-mail, www: Ropka 12A-36, Tartu, +372 7 381 908, kiho@ut.ee, <http://www.cs.ut.ee/~kiho/>
6. Higher education: diploma in computational mathematics, University of Tartu, 1964
7. Academic degrees: Ph.D. from Moscow All-Union Research Institute for Scientific and Technical Information, 1973; *Principles of Infological System for Quantitative Organic Chemistry*
8. Languages: Estonian, Russian, English, German (passive)
9. Current position (since 09.2007): Professor *emeritus*. University of Tartu (UT), Institute of Computer Science.
10. Previous positions
 - 02.1965 – 02.1967: Tartu State University (TSU), Computing Centre, research student
 - 02.1967 – 03.1967: TSU, Computing Centre, younger researcher
 - 03.1967 – 03.1970: TSU, Chair of Computational Mathematics, Ph.D student
 - 03.1970 – 08.1970: TSU, Computing Centre, younger researcher
 - 08.1970 – 09.1971: TSU, Computing Centre, senior researcher

09.1971 – 11.1973: TSU, Chair of Mathematical Statistics and Programming, senior lecturer
11.1973 – 09.1977: TSU, Chair of Mathematical Statistics and Programming, acting assoc. professor
09.1977 – 09.1979: TSU, Chair of Mathematical Statistics and Programming, assoc. professor
09.1979 – 12.1992: TSU/UT, Chair of Computer Programming, assoc. professor, chair leader
09.1992 – 09.1997: UT, Chair of Software Systems, professor
01.1995–12.1996: director of Institute of Computer Science (UT)
01.1998–12.1998: director of Institute of Computer Science (UT)
09.1997 – 09.2002 UT, Institute of Computer Science, Chair of Software Systems, assoc. professor, chair holder
09.2002 – 09.2007 UT, professor of software systems, University of Tartu (UT), Institute of Computer Science

2 Accreditation/evaluation of informatics programmes

See Appendix.

3 Scientific research and development activities

3.1 Main research fields

3.1.1 Development of principles for creating an information system for quantitative organic chemistry (PhD dissertation).

3.1.2 Software package for molecular graph processing

Refinement and implementation of the molecular graphs I/O-language; defining the processing scheme based on corresponding abstract structures ; elab-

oration principles of the skeleton-based search system; creating general procedures and their implementations for handling molecular graphs, including canonical numbering of vertices, based on Corneil-Gottlieb efficient algorithm for graph isomorphism problem.

3.1.3 Creation of a large database for organic chemistry (rate and equilibrium constants) and the corresponding retrieval system

In co-operation with the Chemistry Department, UT (V. Palm, T. Tenno, A. J alas et al.). About 90% of related software engineering works have been carried out by me. The reactivity database contains data for nearly 400,000 individual reactions.

3.1.4 Development and implementation of the sketchy programming techniques

The idea was first published in 1983. It consists in decreasing the weight of textual constructs in programming languages by introducing appropriate graphical constructs. This method not only increases the readability and clarity of source texts but also contributes to expressiveness of control structures. The soundness of the idea is affirmed by the fact that soon quite similar facilities were introduced independently by other developers (J.Martin, 1985, 4GL; Robillard, 1986, Schema-code; FOX-systems et al.), though, mainly for source code illustrative purposes. On the contrary, in sketchy programming systems the graphical elements are considered as the language main tools. The initial versions were restricted to pseudo-graphics. After that, the first C-based graphical version and IDE for IBM PC were realized.

3.1.5 Sketchy modeling of computer texts

A generalization of the idea of sketchy programming. A uniform model for computer texts of any kind is developed. It is based upon a tree, which nodes may have also references to some higher nodes. Sketchy modeling for some kind of computer texts means defining a mapping of texts onto the tree; the simpler (atomic) parts of the texts will be mapped as textual attributes of the nodes. Any resulting tree is called the sketchy text. Besides usual text elements (characters), hyper-symbols (images, and, in turn, sketchy texts) are

allowed. The language of source texts (base language) and the view (display style) are set as additional node attributes.

In a monograph the sketchy modeling principles are described and the specification of the editor system is given.

3.1.6 Methods for teaching programming

Methodical works about teaching the basic ideas of computer programming, including the novel ideas related to sketchy programming techniques . As an application of sketchy modeling a supportive system (<http://www.cs.ut.ee/~kiho/AlgJavaHome.html>) for teaching and learning Java was developed in 2006.

3.2 Number of publications

Total: 91.

Scientific publications: 50

Text-books: 18

Hand-books: 2

Teaching aids: 10

Popular-scientific books 1 (co-author).

General-purpose articles: 10.

3.3 Grants

Estonian Science Foundation grant nr. 414. Visual multisystem programming environment. EEK 20000.-. Period: year 1994.

Estonian Science Foundation grant nr. 3343. Development of a program multiviewer. EEK 94000.-. Period: years 1998–1999.

Estonian Information Technology Foundation, grant nr 06-03-01-28. Development of teaching and development tools for computer programming courses. EEK 42000.-. Year 2006.

3.4 Other scientific organizational and professional activities

Since 2012: Member of the Editorial Board of the Series: *Vestnik of Astrakhan State Technical University*. Series: *Management, Computer science and Informatics*

Lithuanian Centre For Quality Assessment In Higher Education. Peers' Team member (2006), Peers' Team leader (2010)

Contact person (UT) for Joint European Project 2006: Russian Higher Education in Information Technology: an international approach JEP-27211-2006

Since 2007: program director of study programmes at the University of Tartu: Computer Science (Bachelor, Master, and PhD level), Information Technology (Bachelor and Master level). Design of the professional study programme "Applied computer science".

IFIP/IEEE Conference on Distributed Platforms, Dresden, 27.02—1.03 1996, member of the program committee. Estonian Informatics Board, member (1991–1996). Finnish–Estonian group of co-operation on informatics, member (1991–1994).

Universities board of informatics, member.

Journal "Computers and Data Processing" (*Arvutustehnika ja Andmetöötlus*) editor board, member (till 1998).

Accreditation commission for computer science, UT, head.

TEMPUS CME 02078 *Quality Assurance System for Informatics Education* 1996-1998 UT contact person.

Latvian HEQEC Evaluation Commission for accreditation university study programmes in computer science, member (1998–2009), team leader (2010).

Estonian IT Society, member.

1992: one-week cycle of lectures at the University of Turku: *Algorithms' reducibility*.

4 Teaching

4.1 List of subjects taught (1997–2007)

1. Software systems: Java.
2. Algorithms and data structures.
3. Object-oriented programming.
4. Programming (Java).
5. Software systems: SPS.
6. Software engineering.
7. Software project.
8. Software systems: XML.

1999 - 2007 : general supervisor for applied informatics students' practice.

New lecture courses:

1. Programming MTAT.03.100.
Study programme:
<http://www.cs.ut.ee/~kiho/progr/AINEPROGRAMM.doc>.
2. Algorithms and data structures MTAT.03.003.
Study programme:
<http://www.cs.ut.ee/~kiho/ads/spring00/kava.ps>.
3. Software engineering MTAT.03.094.
Study programme:
<http://www.cs.ut.ee/~kiho/SE/fall01/TVTkava-01.doc>.
Lecture notes: <http://www.cs.ut.ee/~kiho/SE/fall01/TVT.ppt>.

4.2 Supervising

Completed: PhD - 3, MSc - 5. Currently supervising: 1 MSc student.

Co-authors of scientific papers 1997–2007: 8 students.

5 Professional replenishment

Conference *Dimensions of Quality Assurance in Informatics Education 2011* September 22-23, 2011 at Lake Como, Italy.

Conference *Defining Quality - The Relevance of Field-specific Approaches to Quality Assurance in Higher Education* 02-03 November, 2009, Bonn, Germany

Euro-Inf Final Conference 04.09-05.09.2008 University of Cagliari, Sardinia (Italy)

TEMPUS-visits

19.05–01.06.1997: London City University (higher education quality assurance)

16.01–11.02.1996: University of Nice (study programme for applied computer science)

01.02–28.02.1995: Eindhoven University of Technology (software engineering)

27.01–06.03.1994: University of Århus (algorithms and data structures)

24.10–12.11.1994: Hagen Fern-University and Dresden University of Technology (distance learning in computer science)

6 Social and public activity

Popular-scientific books 1 (co-author).

Articles in general-purpose journals and newspapers: 8.

Talks:

1. "Education Quality Assurance and Assessment System in England" TEMPUS CME 02078 winter school, Palmse 05.03.1997

2. "New study programme: applied computer science" Day of Faculty of Mathematics, Tartu 29.03.1997

3. "XML notions and terminology" XML info-day for IT managers, Tallinn
31.05.2000