SCIENCE OF THE COMPUTER PROGRAMS AND SYSTEMS IN XX-XXI CENTURIES: PAST, PRESENT, FUTURE

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ABSTRACT

The ways of development of the programs and systems science in connection with the advent of computers in the (1945-1991, 1992-2018) in domestic and foreign directions are defined:

1) The schematic-theoretical, mathematical, algebraic, algorithmic, conception, reliable, etc. and theory of modular, synthesis, assembly, composition, explication programming in the USSR (1953-1991);

2) The formal mathematical apparatus VDM, Z, RSL, B, Clear etc. and proof theory of correctness of such programs in the Europe, USA, (1972-2000);

3) The object-oriented programming, system modeling UML, MDA, MDL, SOA, SCA etc., programming paradigms (automatic, functional, object, Agile, EX etc.) in the USA, Europe (1987-2017);

4) Software Engineering Methods and Theory (SE-1968, SEMAT-2009) for development of the theory of programs and systems for the academic and educational systems (USA);

5) Methods of production of variants (Product Line/Product Family) systems on feature model (MF), multi programming GDM, model configuration, certificate of software quality etc. (2004-2017);

6) Modern theory and methods modeling systems from software resources (objects, components, services, etc.) by OCM - verification models and resources configuration in the building output code products of system in Russia (2012-2018) and in the future;

7) The perspective ways of development theory systems - Web-services and smart Internet, graph theory in programming and nanotechnologies for apparatuses' and smart-computers for the biology, genetic, chemistry, medicine, etc.

Keywords: theory, schema, method, program, systems, reuses, object, model, technology, engineering, modeling, verification, testing, reliability, configuration, product.