scilab enterprises

Präsentiert
Die erste deutsche

Bei der Hochschule Esslingen

Freitag, den 7. November 2014
von 13.30 Uhr bis 17.30 Uhr

Standort Hochschule Esslingen Stadtmitte

Eintrittsfrei

Anmeldung unter

www.iwhe.de/scilab

Tagungsort:

Kanalstr. 33
73728 Esslingen
Deutschland

Konferenzraum 8.008

Anfahrtsbeschreibung:

http://www.hs-esslingen.de/de/hochschule/anfahrt/anfahrt-stadtmitte.html

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SCILAB KONFERENZ
07.11.2014 | HOCHSCHULE - ESSLINGEN

13.45
14.00

Welcoming speech

Dipl.ing. Yann Debray (Scilab Enterprises)

In 1994, Scilab 1.1 was freely available on an anonymous FTP site. Twenty years later, Scilab 5.5.1 developed by Scilab Enterprises allows a bright spectrum of applications such as data analysis, signal and image processing, multiphysical system modeling and simulation along with its modules provided by the community.

Today, Scilab Enterprises expands to Germany in order to build new partnerships in the Education, Research and Industry.

And for the first time, Scilab Enterprises provides Scilab German users with a dedicated conference. Scilab Konferenz is theirs and aims to be the main meeting for Scilab users in Germany.

Scilab Konferenz provides an excellent opportunity for attendees to share and exchange practices, developments and ideas with other users, experts and partners on Scilab software.

This half-day conference will be opened for free to registered users only and all talks will be given in **German**.

20TH ANNIVERSARY of Scilab 1st Launch

SCILAB KONFERENZ
07.11.2014 | HOCHSCHULE - ESSLINGEN

14.00
14.30

Keynote MAThematics LABoratory with Scilab

Prof. Jürgen Koch (HS Esslingen)

The integration of calculators and mathematical software packages in mathematics education has been a controversial issue for many years. Among mathematics teachers in schools there is no consensus about the manner and the amount of reasonable usage. At universities the situation is similar. To address this problem, a Mathematics Laboratory was set up several years ago at Hochschule Esslingen. A Mathematics Laboratory is not only a PC pool equipped with special software. Primarily Mathematics Laboratory is a didactic concept. The objective of the Mathematics Laboratory is to significantly enhance mathematics courses with the use of mathematical software. From our point of view, Scilab is an ideal software to achieve this goal. The talk presents the concept of Mathematics Laboratory at the University of Esslingen.

100 Jahre 1914-2014 Standort Esslingen

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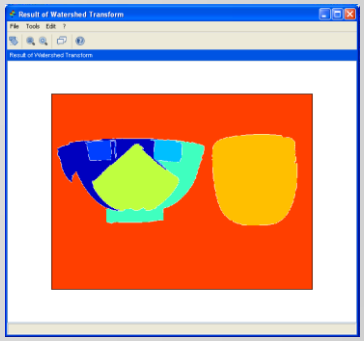
14.30
15.00

Image Processing Design Toolbox

Dr. Harald Galda (Octum GmbH)

Image processing algorithms usually consist of many steps and even more parameters. It is desirable to be able to visualize the effects of image processing operations and their parameters and to document them in a reproducible way. Furthermore, it should be possible to analyze characteristics of regions in an image so an object of interest can be distinguished from the background.

For this purpose, a toolbox for image processing was developed. This toolbox provides functionality for reading images from and writing images to hard disk, basic image processing operations such as filtering, threshold segmentation, blob analysis, histogram calculation and color conversion. Moreover, there is a graphic tool that can display an image and makes it possible to select a pixel, a line or a rectangular region and to display characteristics like gray value profile and histogram.



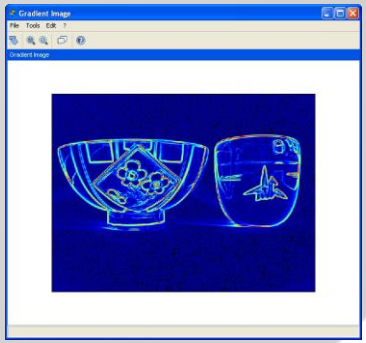


Image Processing Design Toolbox
(93047 downloads)

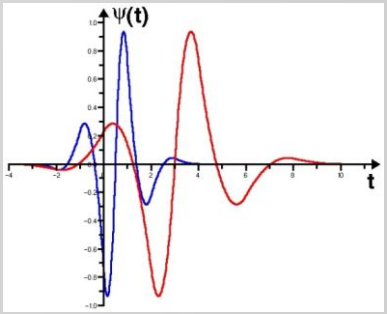
15.00
15.30

Wavelets Toolbox

Prof. Alexander Stoffel (FH Koeln)

The need to have some software free to use for teaching was the main reason to create this toolbox. To have all the mathematical details of the transform algorithms visible looking at the source code and the advantage to adapt and modify the code for special purposes (e.g. for diploma- and master theses) were a further motivation.

An overview of the utilities of the toolbox is given first, then some groups of macros are presented in detail, in particular the macros to calculate the wavelet transform for one-dimensional signals (in the practice audio signals) and two-dimensional signals (images). They are the core of the toolbox. All transforms are implemented using the lifting scheme which is briefly sketched.



A second group of macros concerns calculations with FIR filters or – more mathematically spoken – Laurent polynomials. Their main purpose is to help to construct filters satisfying the conditions of perfect reconstruction for two channel filter banks. Internally the filters are represented as Scilab rationals, but particular output macros allow to show them as z-transform or show the table of the coefficients.

The use of the other groups of utilities as the code experiments, the in- and output of image data and the redundant wavelet transform is only briefly sketched.

The wavelib toolbox in its present form has been used during six years for a mastercourse on wavelets and during a summer term for a research project concerning audio SPAM detection.

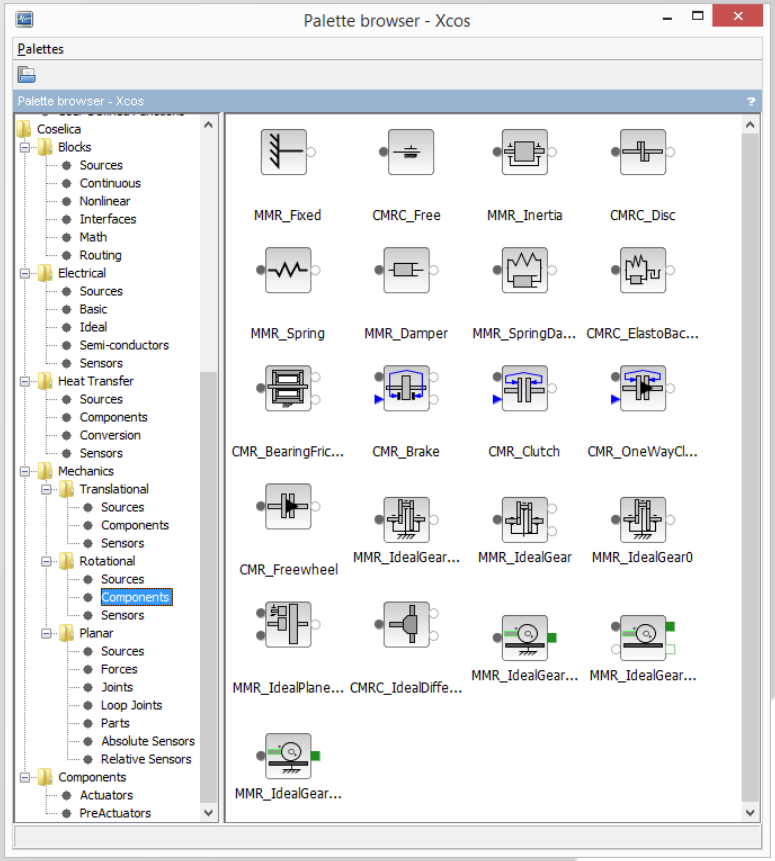
http://alexanderstoffel.selfip.org/wavelib.html

16.00
16.30

Coselica Toolbox

Dr. Dirk Reusch (Kybernetik)

Coselica Toolbox provides 200+ basic Xcos Modelica blocks for acausal, i.e. component based physical, modeling of electrical, mechanical (1D-translational, 1D-rotational and 2D-planar) and thermodynamical (0/1D-heattransfer) systems. Acausal modeling bears a number of advantages in comparison to causal modeling (using only conventional Xcos blocks). However, the best of both worlds can be exploited using interconnected, i.e. a mix of, causal and acausal models. Furthermore, even simple technical systems (e.g. a DC motor) cannot be covered solely by just one physical domain (e.g. mechanics). Usually, they resemble a coupling between different domains (e.g. electrics and mechanics). Coselica provides interconnections between its different physical domains. All in all a basic introduction by examples to the usage of Coselica Toolbox will be given and its limitations will be addressed.



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Coselica (24860 downloads)

16.30
17.00

Scilab RF Toolbox

Dipl.ing. Klaus Debes (Airbus DS)

The development of the new Scilab RF Toolbox has been started with the goal to implement libraries and models for RF circuit analysis, simulations.

The current status of the toolbox is presented, calculating network parameters for RF components in series, parallel, cascade, hybrid, and inverse hybrid configurations, as well as noise figure calculations and third-order intercept points for cascaded components. The RF Toolbox functions can be executed from the Scilab command line. Also the toolbox functions can be called up from SCE scripts and functions.

The planned activities are presented, such as RF filter definitions, transmission lines, amplifiers and mixers. Also the import and export of industry-standard file formats for network parameters (ADS, Touchstone), conversion among S, Y, Z, ABCD, h, g, and T network parameters, rectangular and polar plots and Smith charts for visualizing data.

Finally an outlook on the migration to Xcos is presented.

An elementary task in RF engineering is to determine the impedance and reflection coefficient of components which are configured into a network. The Scilab RF Toolbox describes an RF component by its network parameters, which are sufficient to identify the resulting small signal response. From the individual network parameters of any assembly containing the defined components, the network parameters and small signal response can be calculated using the Scilab RF Toolbox.

The Scilab RF Toolbox allows using network parameters for specification of RF filters, transmission lines, amplifiers, and mixers, either directly or by their physical properties.

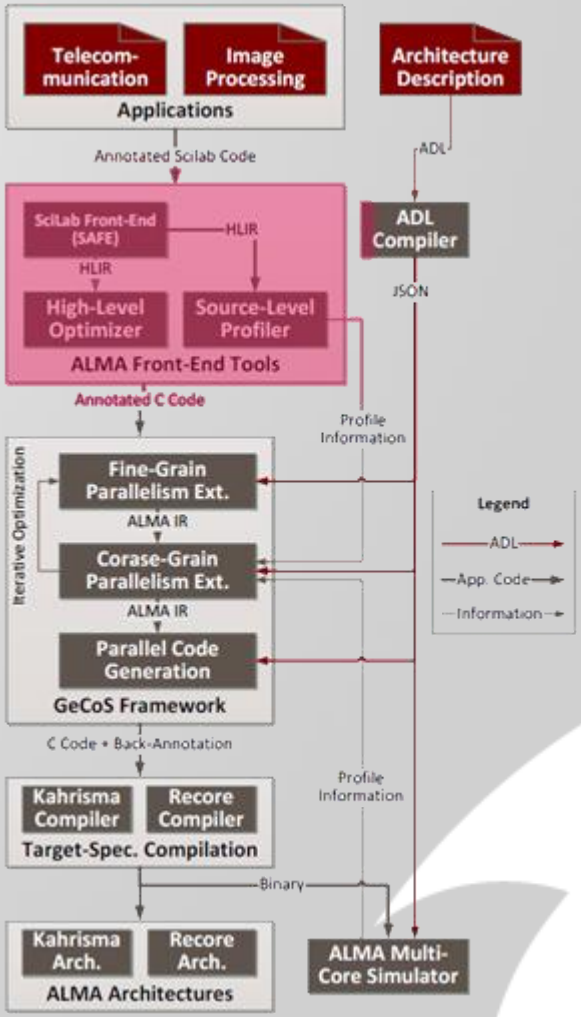
An example is presented how to specify components by their physical properties, such as RLC topology and values and transmission line properties. The corresponding network parameters are then calculated by the Scilab RF Toolbox.

17.00
17.30

The ALMA Project

Dr. Timo Stripf (KIT)

The mapping process of high performance embedded applications to today's multiprocessor system on chip devices suffers from a complex toolchain and programming process. The problem here is the expression of parallelism with a pure imperative programming language which is commonly C. This traditional approach limits the mapping, partitioning and the generation of optimized parallel code, and consequently the achievable performance and power consumption of applications from different domains. The Architecture oriented paraLlelization for high performance embedded Multicore systems using scilAb (ALMA) project aims to bridge these hurdles through the introduction and exploitation of a Scilab-based toolchain which enables the efficient mapping of applications on multiprocessor platforms from high level of abstraction. This holistic solution of the toolchain allows the complexity of both the application and the architecture to be hidden, which leads to a better acceptance, reduced development cost and shorter time-to-market. Driven by the technology restrictions in chip design, the end of Moore's law and an unavoidable increasing request of computing performance, ALMA is a fundamental step forward in the necessary introduction of novel computing paradigms and methodologies.



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http://alma-project.eu/

Melden Sie sich unter

www.iwhe.de/scilab

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