# EU-Project Hycon

The increasing complexity of control systems in the automotive area requires new design principles. One promising approach in this context is the application of hybrid models in the development of control systems.

Hybrid models contain discrete and continuous behaviour and thus represent a perfect tool for describing physical processes. Nowadays these are generally acquired through simulations without consideration of methodological research results in that area.

The EU-funded Network of Excellence HYCON (http://www.ist-hycon.org) has been founded to make a change in this area.

## Goals

The global aim of this project is on the one hand elaborating outstanding scientific results and on the other hand strengthening bounds between european universities.

A stable community of leading research establishments and industry partners that support the development and application of hybrid systems will be created to serve this purpose. Additionally, the plan is to found the European Institute of Hybrid Systems (EIHS). This institute will profit from extensive knowledge of participating partners and become a globally renowned institution for the research and application of hybrid systems.

## Research at I11

We focus on the application and development of methods in the automotive area of hybrid systems.

Special attention is drawn towards the following:

- Reuse of hybrid models in the development process of engines
- Increasing the efficiency of the automotive development process
- Evaluation of development processes

Currently, we are developing a virtual engine test bench using a tool called LabCar by ETAS. It will be applied in the design of hardware-in-the-loop (utilizing an ES4105) and model-in-the-loop experiments.

The results will serve for the evaluation of different design principles in control unit design.

## Partners

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| France Innovation Scientifique et Transfert | Università di Pisa |
| Centre National de la Recherche Scientifique | Università degli Studi di Siena |
| Université Catholique de Louvain | PARADES |
| ETH Zurich | TU Eindhoven |
| Ruhr-Universität Bochum | Universiteit Twente |
| Universität Dortmund | Technische Universiteit Delft |
| Deutsches Zentrum für Luft- und Raumfahrt | Royal Institute of Technology |

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|---|---|
| Technische Universitaet Berlin | Linköpings Universitet |
| Universidad de Sevilla | Lund Institute of Technology |
| Ecole Supérieure d'Electricité | University of Cambridge |
| Aachen University of Technology | INRIA |
| Consiglio Nazionale delle Ricerche | University of Valladolid |
| Università degli Studi dell'Aquila | University of Patras |

## Relevant Diploma Theses

- will be put up soon

## Contact

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(http://www.embedded.rwth-aachen.de/)

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