

CENTER FOR EMBEDDED ELETRONIC SYSTEMS

Researchers

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Description

The group at the Center for Embedded Electronic Systems (NSEE), created on the initiative of Maua Institute of Technology (IMT) at the initial version of INCT, has developed research on critical systems with direct application in aerospace. Its main objective is related to the study of electronic systems in order to solve problems given severe constraints on communication speed, mass consumption and real-time processing. Another field of research involves the development of multivariable control and signal processing, algorithms and their implementations in embedded systems.



Research 1

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Research 2

Before interacting with a certain system, one must have some knowledge on how the system variables relate to each other. A mathematical model is a description of these relations in terms of equations. The use of mathematical models is inherent in various areas of knowledge, either to generate predictions or to the model-based project approach. System input and output data can be used to infer a mathematical model. Such an approach is referred to as system identification. The increasing complexity of the systems to be handled and the availability of software and hardware tools to collect and process experimental data are boosting the use of system identification techniques. Our group has a research line dedicated to the development of innovative identification algorithms and offers opportunities to students and researches. People interested in the applications of system identification algorithms (such as model-based design of feedback controllers for real devices) are welcome.

Projects

CITAR – Circuitos Integrados Tolerantes à Radiação (liderado pelo CTI de Campinas – financiamento FINEP/IMT), Plato (PLANetary Transits and Oscillations of stars) European Space Agency (ESA) – Fapesp/CNPq/IMT, Cubesat 3U - IMT, Multivariable identificaton –IMT/Fapesp, SEAC – Critical electronic systems– Brafitec – Capes/IMT.

Laboratory

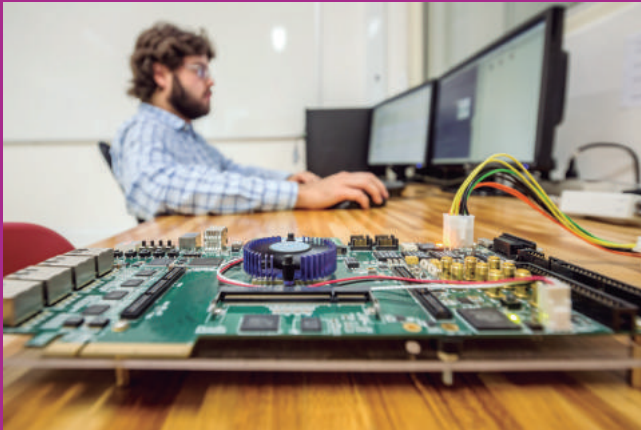


Figure 1. General view of the laboratory



Recent publications

AUVERGNE, M.; BODIN, P.; BOISNARD, L.; BUEY, J. T.; CHAINTREUIL, S.; PARRO, V. C. The CoRoT satellite in flight: description and performances. **Astronomy & Astrophysics** (Berlin. Print). , v.506, p.411 - 424, 2009.

ROMANO, R. A.; GARCIA, C. Valve friction and nonlinear process model closed-loop identification. **Journal of Process Control**. v.21, p.667-677, 2011.

RAUER, H.; CATALA, C.; Et Al. Plato 2.0 team - The Plato 2.0 mission - Experimental astronomy - Springer - <http://arxiv.org/abs/1310.0696>.

ROMANO, R. A.; POTTS, A. S.; GARCIA, C. Model predictive control relevant identification. In: GINALBER LUIZ DE OLIVEIRA SERRA. (Org.). *Frontiers in Advanced Control Systems*. ed.1, Rijeka, Croácia: InTech, 2012, v. 1, p. 231-252.