



University POLITEHNICA of Bucharest
Faculty of Automatic Control and Computers

Splaiul Independenței nr.313, sector 6, cod 060042,
Bucharest, ROMANIA



Professor Cristian OARA
PhD Adviser in "Systems Engineer"
Doctoral School Automatic Control and Computers
University Politehnica Bucharest

Contact: Prof. Cristian OARA
University Politehnica Bucharest
Faculty of Automatic Control and Computers
Department Automatic Control and Systems Engineering
Splaiul Independenței, 313, sala ED411, sector 6, 060042, Bucuresti
Romania
Tel: +40 21 402 9331
E-mail: cristian.oara@acse.pub.ro
Web: <http://acse.pub.ro/person/cristian-oara-2/>

Research areas: The research areas are listed under the following 5 categories.

I. Riccati Theory. Quadratic optimization techniques based on the uttermost general types of Riccati equations and their numerically sound solution based on matrix pencils; applications in fundamental problems in Systems Theory and Automatic Control; nonsymmetric Riccati equations and their applications in cooperative and noncooperative dynamical games, including Nash and Stackelberg;

II. Factorization of Systems. General factorization of systems without restrictive assumptions, including coprime, spectral, J-spectral, J-inner-outer, minimal, nonminimal, Wiener-Hopf, singular generalized, descriptor, and their application in control systems;

III. Numerical Algorithms in Control. Development of numerically sound algorithms for the Analysis and Synthesis of Automatic Control Systems and related structural problems.

IV. Robust Control of Generalized Systems. Robust control of generalized linear systems (described by a mix of algebraic and dynamical equations) which are finite /infinite dimensional time invariant/varying, based on generalized Popov theory, Youla parameterization, Nehari, Adamjan-Arov-Krein problems or suboptimal/optimal H-2/H-infinity techniques;

V. Robust Distributed Control of Dynamical Agents. Distributed control laws based on sparse coprime architectures of network systems with applications in autonomous vehicle platooning and swarms of civil or military drones, etc.

PhD adviser: since 2009;

- 3 graduated PhDs;
- 5 thesis undergoing.

Publications: 12 books/chapters in books; 35 articles in top ISI journals (27 Q1, 6 Q2), over 50 papers in Proceedings of top international conferences.

Research grants: 5 research projects with World Bank/CNCSIS/Av Humboldt Stiftung, total value > 500 000 Euro.

PhD subjects: In any research area listed above a prospective PhD student could receive a hot research topic to fulfill his own particular profile, background and interest.