

Curriculum Vitae

Research and Industry Experience

Head, Control Lab, Institute of Control Engineering, University of the Bundeswehr Munich, since 2011.

Field of Research: Systems Theory; Fully automated, formally correct controller synthesis

Field of Application: Autonomous Flight

Research Associate, Universities of Magdeburg, Kassel, Berlin, Germany, 2003-2011.

Postdoctoral Research Fellow, Massachusetts Institute of Technology, 2000-2002.

Development Engineer, Infineon Technologies, Munich, Germany, 1999-2000.

Research Associate, TU Dresden, Dresden, Germany, 1995-1998.

Education

Facultas docendi and Venia legendi in Systems Theory, TU Berlin (advisor: H. Boche), 2009

Dr.-Ing. in Electrical Engineering (summa cum laude), TU Dresden (advisor: A. Reibiger), 1998

Dipl.-Math. in Mathematics (with distinction), TU Dresden (advisor: Th. Riedrich), 1995

Dipl.-Ing. in Electrical Engineering (with distinction), TU Dresden, 1991

Selected Grants and Projects

Flight Performance Requirements Fulfilment through Automatic Abstraction-based Controller Synthesis Applied to a VTOL Tail-sitter Unmanned Aircraft, DAAD, 2018-2020

Certifiable Autonomy in Unmanned Aerial Vehicles - Phase I, Munich Aerospace, 2016-2020

Fully Automated and Correct-by-Construction Synthesis for Complex Control Problems, Deutsche Forschungsgemeinschaft, 2016-2021

Selected Publications (see also [WWW](#))

Symbolic optimal control, *IEEE Trans. Automat. Control*, 2019.

Feedback refinement relations for the synthesis of symbolic controllers, *IEEE Trans. Automat. Control*, 2017. — 2019 George S. Axelby Outstanding Paper Award —

Strong structural controllability and observability of linear time-varying systems, *IEEE Trans. Automat. Control*, 2014.

Differential-Algebraic Equations of index 1 may have an arbitrarily high structural index, *SIAM J. Sci. Comput.*, 2000.

Systolic array for the simulation of Lotka–Volterra–Systems, Patent DD 288 911, 1989.

Miscellanea

Permanent reviewer for “Mathematical Reviews”, since 2019

Deputy representative of handicapped personnel, Univ. of the Bundeswehr Munich, 2018-2022

Senior Member, IEEE, since 2000