Multi-University Research Initiative on
High-Confidence Design for Distributed Embedded Systems

Frameworks and Tools for High-Confidence Design of Adaptive, Distributed Embedded Control Systems

Year 2 Data

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TEAM MEMBERS:

Vanderbilt: J. Sztipanovits (PI), G. Karsai and P. Volgyesi
UC Berkeley: C. Tomlin (Lead and co-PI), Edward Lee, George Necula and S. Sastry
CMU: Bruce Krogh (Lead and co-PI) and Edmund Clarke
Stanford: (Lead and co-PI) Stephen Boyd

FA9550-06-0312
1. **Conference Papers Written**


31. D. Balasubramanian, A. Narayanan, S. Neema, F. Shi, R. Thibodeaux, G. Karsai: A Subgraph Operator for Graph Transformation Languages, accepted for presentation at 6th In-
ternational Workshop on Graph Transformation and Visual Modeling Techniques, March 31 - April 1, 2007, Braga, Portugal.


2. Accepted Journal Papers Written


10. S. Boyd, S.-J. Kim, L. Vandenberghe, and A. Hassibi, “A tutorial on geometric pro-

adaptive optics via convex optimization”, submitted to IEEE Journal of Lightwave


14. K.-L. Hsiung, S.-J. Kim, and S. Boyd Tractable Approximate Robust Geometric Pro-
gramming Optimization and Engineering, published online October 2007.

IEEE Transactions on Signal Processing.

16. M. Lobo, M. Fazel, and S. Boyd: “Portfolio Optimization with Linear and Fixed Transac-

17. S.-J. Kim, S. Boyd, S. Yun, D. Patil, and M. Horowitz: “A Heuristic for Optimizing Sto-
chastic Activity Networks with Applications to Statistical Digital Circuit Sizing,” Opti-
mization and Engineering, 8(4):397-430, December 2007

18. L. Xiao, S. Boyd, and S.-J. Kim: “Distributed Average Consensus with Least-Mean-

\( \ell_1 \)-Regularized Least Squares,” IEEE Journal on Selected Topics in Signal Processing,


3. Books/Chapters Written

Concurrent Modeling and Design in Java (Volume 2: Ptolemy II Software Architec-
ture)," EECS Department, University of California, Berkeley, UCB/EECS-2007-8, January
11, 2007. (Chapter 7 covers code generation)

2. M. Grant and S. Boyd: “Graph Implementations for Nonsmooth Convex Programs,” Re-
cent Advances in Learning and Control (tribute to M. Vidyasagar), V. Blondel, S. Boyd,
and H. Kimura, editors, pages 95-110, Lecture Notes in Control and Information

4. Any other papers not covered in the first 3


5. Did you make Academic Promotion/Tenure

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6. Any awards received this year

2. Claire Tomlin:
3. Shankar Sastry:
   a. Appointed Dean of Engineering, UC Berkeley, July 2007
   b. Technical Advisory Group, President's Council on Science and Technology, 2006-07
   c. Plenary Speaker, ICASSP, Honolulu, April 2007
   e. Plenary Speaker, Hybrid Systems Computation and Control, Pisa, March 2007
4. Janos Sztipanovits:
      - Best Paper Award, DATE 2007
      - Selected for publishing in the Springer volume of The Most Influential Papers of 10 Years of DATE
   b. Elected to chair the AF SAB FY08 Study on “Gaining Operational Readiness in Cyber Contested Environment”