Ameer Kalandar Mulla

Assistant Professor,

Department of Electrical Engineering,

Indian Institute of Technology Dharwad,

Dharwad - 580 011, Karnataka, India

Email: ameer@iitdh.ac.in

Office: +91 836 2212 846

Mobile: +91 9420129674

www.iitdh.ac.in/∼ameer

Educational Background

Ph.D. Electrical Engineering (**Course-work CPI 8.55**)   January 2011- September 2016

Indian Institute of Technology Bombay   *Mumbai*

- *Thesis Title:* Time Optimality in Consensus Problems

- *Advisor:* Prof. Debraj Chakraborty

B.Tech. Instrumentation and Control (**CGPA 7.8**)   July 2004 - May 2008

College of Engineering Pune   *Pune*

Research Interest

Decentralized control, System identification, Static and differential games, Algorithm development, Optimization, optimal control, traffic modeling

Work Experience

Indian Institute of Technology Dharwad   Dharwad

Assistant Professor   *July 2017-present*

Tata Consultancy Services, Innovation Labs   Mumbai

Contract Consultant (Retainer)   *October 2016-June 2017*

Xerox Research Centre India   Bengaluru

Research Intern   *May 2015-July 2015*

Bharat Petroleum Corporation Ltd.   Mumbai Refinery

Maintenance Officer   *June 2008-July 2010*

Research Publications

- **Journal**:

  1. Ajul Dinesh, and **A. K. Mulla**, "Reduced-Order Min-Max Guaranteed Cost Control for Finite-Time Boundedness of Uncertain Linear Systems Using Output Feedback", in *IEEE Control Systems Letters*, vol. 7, pp. 637-642, 2022.

  2. R. Sarkar, D. Patil, **A. K. Mulla** and I. N. Kar, "Finite-Time Consensus Tracking of Multi-Agent Systems Using Time-Fuel Optimal Pursuit Evasion," in *IEEE Control Systems Letters*, vol. 6, pp. 962-967, 2022.

3. **Ameer K. Mulla**, "Self-Triggered Finite Time Pursuit Strategy for a Two-Player Game", in *IFAC-PapersOnLine*, Vol. 53, No. 2, pp. 2759-2764, 2020.

4. **A. K. Mulla**, A. Joshi, R. Chavan, D. Chakraborty and D. Manjunath, "A Microscopic Model for Lane-Less Traffic," in *IEEE Transactions on Control of Network Systems*, vol. 6, no. 1, pp. 415-428, March 2019.

5. **Ameer K. Mulla**, Deepak U. Patil and Debraj Chakraborty, "Computation of the target state and feedback controls for time optimal consensus in multi-agent systems", in *International Journal of Control*, vol. 91, no. 2, pp. 453-469, 2018.

6. **A. K. Mulla** and D. Chakraborty, "Min–Max Time Consensus Tracking With Communication Guarantee," in *IEEE Transactions on Automatic Control*, vol. 63, no. 1, pp. 132-144, Jan. 2018.

7. Deepak U. Patil, **Ameer K. Mulla**, Debraj Chakraborty and Harish Pillai, "Computation of feedback control for time optimal state transfer using Groebner basis", in *Systems and Control letters*, Vol.79, pp.1-7, May 2015.

- **Conference proceedings**:

1. Jeslin Jacob M., Ajul Dinesh, and **A. K. Mulla**, "On Bilateral Teleoperation of Multi-agent Systems: Bearing-Based Formation Tracking Control", in the proceedings of the *Eighth Indian Control Conference*, 14-16 Dec., Chennai, India, 2022.

2. Arvind Pandit, Akash N., **A. K. Mulla**, "Bearing-based Formation Tracking of Multi-UAV System under Time-varying Directed Interaction" in the proceedings of the *Eighth Indian Control Conference*, 14-16 Dec., Chennai, India, 2022.

3. Jeslin Jacob M., and **A. K. Mulla**, "Bearing-based Formation Tracking of Multi-UAV System under Time-varying Directed Interaction", in the proceedings of the *22nd IFAC Symposium on Automatic Control in Aerospace*, 21-25 Nov., Mumbai, India, 2022.

4. Ajul Dinesh, ASHFIN RASEEM, **A. K. Mulla**, "Guaranteed Cost Robust Control for Finite-Time Boundedness of LTI Systems Using Output Feedback", in the proceedings of *7th Indian Control Conference*, Mumbai, India, 2022

5. **A. K. Mulla**, "Leader Selection for Minimum Time Consensus in Networks of Discrete Time Systems," in the proceedings of the *18th European Control Conference (ECC)*, pp. 578-583, 2019.

6. D. U. Patil and **A. K. Mulla**, "Distributed Computation of Minimum Step Consensus for Discrete Time Multi-Agent Systems," in the proceedings of the *Fifth Indian Control Conference*, pp. 189-194, 2019.

7. **A. K. Mulla**, D. Anand, D. Chakraborty and M. N. Belur, "Leader selection for minimum-time consensus in multi-agent networks," in the proceedings of the *IEEE 56th Annual Conference on Decision and Control*, 2017, pp. 1036-1041, 2017.

8. **Ameer K. Mulla**, Rakesh U. Chavan and Debraj Chakraborty, "A Dynamic Model for Lane-less Traffic", in the proceedings of *Indian Control Conference*, Guwahati, India, 4-6 Jan., 2017.

9. **Ameer K. Mulla**, Deepak U. Patil and Debraj Chakraborty, "An $O(N^2)$ Algorithm for Computation of the Minimum Time Consensus", in the proceedings of 55th *IEEE Annual Conference on Decision and Control*, Las Vegas, USA, 12-14 Dec., 2016.

10. Rakesh U. Chavan, **Ameer K. Mulla**, Debraj Chakraborty and D. Manjunath, "A Model for Lane-less Traffic with Local Control Laws", in the proceedings of *European Control Conference*, Aalborg, Denmark, 29 June-1 July, 2016, pp. 2447-2452.

11. Apurva Joshi, Narendra Limbu, Indrajit Ahuja, **Ameer K. Mulla**, Hoam Chung and Debraj Chakraborty, "Implementation of Distributed Consensus On Outdoor Testbed", in the proceedings of *European Control Conference*, Aalborg, Denmark, 29 June-1 July, 2016, pp. 2146-2151.

12. **Ameer K. Mulla**, Gurulingesh Raravi, R. P. Jagadeesh Chandra Bose, Rajasubramaniam Thangaraj and Koustuv Dasgupta, "Efficient Task Allocation in Services Delivery Organizations", in the proceedings of 13th *IEEE Conference on Services and Computing*, San Francisco, USA, 27 June-2 July, 2016, pp. 555-562.

13. **Ameer K. Mulla** and Debraj Chakraborty, "Communication Preserving Min-Max Time Consensus Tracking", in the proceedings of *European Control Conference*, Linz, Austria, 15-17 July, 2015, pp. 1712-1717.

14. **Ameer K. Mulla**, Deepak U. Patil and Debraj Chakraborty, "Distributed Computation of Minimum Time Consensus for Multi-Agent Systems", the proceedings of the 53rd *IEEE Annual Conference on Decision and Control*, Los Angeles, California, USA, 15-17 Dec., 2014, pp. 5554-5559.

15. **Ameer K. Mulla**, Sujay Bhatt H. R., Deepak U. Patil and Debraj Chakraborty, "Min-max Time Consensus Tracking Over Directed Trees", in the proceedings of 21st *International Symposium on Mathematical Theory of Networks and Systems*, Groningen, The Netherlands, 7-11 July, 2014, pp. 530-537.

16. Deepak U. Patil, **Ameer K. Mulla**, Debraj Chakraborty and Harish Pillai "Gröbner Basis Computation of Feedback Control for Time Optimal State Transfer", the proceedings of the 52nd *IEEE Conference on Decision and Control*, Firenze, Italy, 10-13 Dec., 2013, pp. 3243-3248.

17. Sujay Bhatt, Siuli Mukhopadhyay, **Ameer K. Mulla** and Debraj Chakraborty "Semidefinite Programming Methods for Min-max Robust Parameter Design", the proceedings of the *International Conference on Statistics in Science*, Business, and Engineering, Langkawi, Malaysia, 10-12 Sept., 2012, pp. 1-5.

- **Patents**:

1. **Ameer K. Mulla**, Gurulingesh Raravi, R. P. Jagadeesh Chandra Bose, Avantika Gupta and Koustuv Dasgupta, "*Method and System for Auto-Allocation of Tasks to Resources of an Organization*", US Patent 10,789,557, 2020.

Awards

- Early Career Research Award, 2018.

- DST-INSPIRE Faculty Award, 2016.