# Shourya Bose

BITS Pilani, KK Birla Goa Campus
- Department of EEE
- Department of Mathematics

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## Education

**BITS Pilani, KK Birla Goa Campus**
M.Sc. (*Hons.*) Mathematics (Aug 2014 - Present)
B.E. (*Hons.*) Electrical & Electronics Engineering (Aug 2014 - Present)

Both degrees under Integrated Dual Degree Scheme, expected December 2019.

## Research

**Indian Institute of Science, Bangalore** (Jan 2019 - Present)

This research internship was done under the guidance of Dr. Pavankumar Tallapragada as part of the Control & Network Systems Group, and satisfies thesis requirements for both major subjects. As a part of this internship, I explored stabilization of linear systems over channels whose state evolves in time as an action-dependent Markov chain. The outcome of this internship is a journal paper which has been submitted to *IEEE Transactions on Control of Network Systems* [1].

**Indian Institute of Science, Bangalore** (Nov 2017 - Dec 2017)

I took a break from regular coursework to carry out research as part of the Control & Network Systems Group. During this internship, I explored stabilization of linear systems over channels whose state evolves in time as a Markov chain. The outcome of this internship is a conference paper, submitted and accepted in the *Fifth Indian Control Conference, 2019* at IIT Delhi [2].

**Indian Institute of Science, Bangalore** (Jun 2017 - Aug 2017)

In my first research internship as part of the Control & Network Systems Group, I explored co-ordinated search algorithms for single and multi-agent aerial systems like UAV's, to search for a potential target on the ground.

**BITS Pilani, KK Birla Goa Campus** (August 2016 - May 2017)

As a part of three graded *Design Projects* under the guidance of Dr. Amit Setia, I explored numerical algorithms to solve fractional order differential equations (FODE's) over a finite time horizon using Haar Wavelets. These projects led to a journal article which was published in *International Journal of Chemical Reactor Engineering* [3] published by DeGruyter.

## Experience

**Research Intern, Pixxel Space** (Jan 2019 - Present)

Pixxel Space is a space startup which is aiming to launch a constellation of earth observation satellites to commercial customers for purposes like soil analysis, weather phenomenon analysis, etc. I aided in the writing of *Orbital Debris Assessment Report (ODAR)* required by the FCC to authorize any satellite operator to operate in space. I also gained experience in custom mission analysis software such as NASA GMAT, a.i. Solutions FreeFlyer, etc.

**Summer Intern, H.M.T. Tractors, Pinjore** (May 2016 - July 2016)

As a part of this internship, I carried out an *Energy Audit* of the shop floor and production floor at H.M.T. Tractors' Pinjore plant. The goal of the energy audit was to propose cost-saving and environment-friendly measures to streamline the aging plant. My final report was presented before the Operations Manager of the plant, and was appreciated by him.

**Secretary, Student Body of Mathematics Department**
(Aug 2015 - May 2016)

As a part of the student body representing the students at the Mathematics Department of my college, I co-ordinated regular interaction sessions between the faculty and students for feedback. I also helped in the organization of *Mathfest*, a math themed festival organized annually by the Department.

## Awards and Honors

**Participant, Hult Prize Global Finals, Dubai** (Summer 2016)

**Winner, Hult Prize Regional Finals, Goa** (Sep 2015)

Hult Prize is an annual global entrepreneurship challenge organized by the Hult Business school. I was a member of a team of four BITS students who came up with the idea of networked transport and logistics in order to decongest slums and allow slum dwellers to seek employment at places far away from their homes, and thus become competitive in the wage market. We implemented our model on a small scale, and correspondingly, won the regional finals of Hult Prize held in Goa, beating out 20+ other ideas.

## Languages and Skills

Bengali (native), Hindi, English (professional fluency), French (basic).
MATLAB, LaTeX, C/C++, Python, x86 Assembly.

## References


[1] **S. Bose** and P. Tallapragada, "Control under action-dependent markov packet drops: An event-triggered approach," *IEEE Transactions on Control of Network Systems (Submitted)*. [Online]. Available: https://arxiv.org/abs/1912.03728

[2] **S. Bose** and P. Tallapragada, "Event-triggered second moment stabilization under markov packet drops," in *2019 Fifth Indian Control Conference (ICC)*, Jan 2019, pp. 113–118.

[3] B. Prakash, A. Setia, and **S. Bose**, "Numerical solution for a system of fractional differential equations with applications in fluid dynamics and chemical engineering," *International Journal of Chemical Reactor Engineering*, vol. 15, no. 5, 2017.