Department of Computer Science and Automation
Indian Institute of Science

Welcome to CSA Research Interviews 2020

Dear Applicant,

We are pleased to invite you to attend an interview for a research student position in our department. The interviews will be held *online* during the week of **July 6–10, 2020**. Each day will have two sessions, beginning at 9 am and 2 pm, respectively. The exact date and session of your interview would have been communicated to you separately by the Admissions Office of IISc. We will shortly send you the logistic details for attending your online interview.

The attached note gives you more information about the interview process and should help you to prepare for the interview. Once you have gone through this note, please remember to fill in the online **Option Form** available at `https://forms.gle/Wkbvg3yUXiAG53w16` by **12pm (Noon) on Friday 3rd July 2020**. Among other things in this form you will be asked to choose a research stream, research sub-areas, and background subjects. Please enter your choice carefully as it will determine which panel you will be interviewed by and the topics on which you will be asked questions. Please also note that in case you are admitted to the research programme, you will be expected to work on a research topic within the chosen research stream.

To help you make informed choices during your interview process we encourage you to learn more about our activities by visiting the faculty and lab pages at the CSA website: `https://www.csa.iisc.ac.in`. Additional information is available at `https://www.csa.iisc.ac.in/people-all/join-us/prospective-students`.

You are welcome to email us at `office.csa@iisc.ac.in` if you have further questions.

With best wishes,

Shalabh Bhatnagar
Professor and Chair
Dept. of Computer Science and Automation
Indian Institute of Science, Bangalore.

Research Interview Process at CSA

- This round of interviews will be held **online**. You will separately receive information on the logistics for attending your interview online.
- The interview will test your aptitude and suitability for research in your chosen research sub-areas, as well as your proficiency in the related background subjects. The emphasis will be on testing your understanding of fundamental concepts and problem solving. The interview will typically last for around 30 minutes, though it may sometimes extend up to an hour.
- In the online Option Form you will be asked to indicate your choice of a *Research Stream*, up to two *Research Sub-Areas* within that stream, and two *Background Subjects* corresponding to that research stream. Please see Table 1 below for details on the available choices.

  A list of representative books for these background subjects is available at

https://www.csa.iisc.ac.in/academics-all/courses/books-for-basic-subjects

Please remember to fill in the Option Form online at https://forms.gle/Wkbvg3yUXiAG53w16 on or before **12pm (Noon) on Friday 3rd July 2020**.

- You will first be examined in your chosen background subjects. This may be followed by more questions related to your choice of research sub-areas.
- If you are an **External Registration Programme (ERP)** applicant, the interview will additionally include a *5 minute presentation* on your proposed research area and problem. You would have already discussed the problem with your designated faculty advisor. In the interest of time, please keep your presentation short.
- Please note that in case you are admitted to the research programme, you will be expected to work on a research topic within the research stream you have choosen in the form.

Table 1: Research areas where positions are available, and corresponding background subjects

Research Stream	**Sub-Areas where positions are open**	**Background Subjects**
Theoretical Computer Science https://www.csa.iisc.ac.in/theoretical-computer-science	Algorithmic Game Theory, Algorithms, Complexity Theory, Combinatorial Geometry, Computational Geometry, Computational Topology, Cryptography, Graph Theory, Secure Distributed Computing	Data Structures and Algorithms, Discrete Math, Linear Algebra, Probability Theory, Theory of Computation
Computer Systems and Software https://www.csa.iisc.ac.in/computer-systems	Compilers, Computer Architecture, Computer Systems Security, Databases, Distributed Systems, High Performance Computing, Multicore Computing, Programming Languages, Operating Systems, Scientific Visualization, Software Engineering, Software Systems and Accelerators for AI/ML, Wireless Ad Hoc and Sensor Networks	Computer Organization, Data Structures and Algorithms, Engineering Math (including Automata Theory, Discrete Math, Linear Algebra, and Probability), Operating Systems, Programming.
Intelligent Systems https://www.csa.iisc.ac.in/intelligent-systems	Deep Learning, Data Driven Safety, Game Theory, Learning in Robotic Systems, Legged Locomotion, Machine Learning, Mechanism Design, Network Science, Optimization, Reinforcement Learning, Social Networks, Soft Computing, Stochastic Approximation Algorithms	Discrete Math, Linear Algebra, Probability Theory