Welcome to CSA Research Interviews 2017

Dear Applicant,

Thank you for applying to CSA for a research student position. Please note that this letter is relevant to you only if you have been separately intimated about being shortlisted for our interview process by the IISc Academic Section.

The interviews will be held during the week of **June 5–9, 2017**, in two sessions beginning at 9 am and 2 pm respectively, on each day. The exact date and session of your interview would have been communicated to you separately.

Our interview process consists of a *written test*, followed by an *oral interview* for candidates shortlisted in the written test. The attached note gives you more information about the interview process at CSA and will help you to prepare for the interview process.

Please print out and fill up the attached *Option Form*, and bring it to the interview. To help you make informed choices while filling out the form, we encourage you to learn more about our activities by visiting the faculty and lab pages at the CSA website at `http://www.csa.iisc.ac.in`. Additional information is available at `http://www.csa.iisc.ac.in/academics/academics-prospectivestudents.php`.

You are welcome to email the CSA Admissions Committee at `admissions@csa.iisc.ac.in` if you have further questions.

With best wishes,

Jayant R. Haritsa
Professor and Chair
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Research Interview Process at CSA

- A **written test** of 30 minutes duration will be conducted at the beginning of the interview session.
  (a) There will be 10 short answer questions.
  (b) The syllabus for the written test is the **GATE CS** syllabus for the following topics: Engineering Mathematics (all subtopics included), Programming and Data Structures, and Algorithms.
  (c) You are expected to attempt all 10 questions.
- Based on your performance in the written test, you may be shortlisted to appear for an **oral interview** to be conducted in the same session.
- The **oral interview** is intended to test your aptitude and suitability for research in your chosen areas, as well as your proficiency in the related background subjects. The emphasis will be on testing your understanding of fundamental concepts. The oral interview will be structured as follows:

(a) Please consult Table 1 and indicate in the *Option Form* (Page 3 of this note) your choice of *one* Main Research Area and at most *two* corresponding Sub-Areas of research from Column 2, in which you would like to do research. You must also indicate *two* corresponding Background Subjects from Column 3 in which you would like to be examined in. A list of representative books for these background subjects is available at

`http://www.csa.iisc.ac.in/academics/academics-prospectivestudents-books.php`.

(b) You will first be examined in the background subjects you have chosen.

(c) This may be followed by more questions related to your choice of sub-areas of research.

(d) If you are an **External Registration Programme (ERP)** applicant, the oral 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. Kindly note that projection facilities will not be available. You may bring along with you a one-page write-up to be circulated to the committee members.

- Please submit the filled-in *Option Form* (Page 3 of this note) when you report to the department office at the beginning of your interview session.
- Please note that in case you are admitted to the research programme, you will be expected to work on a research topic related to the sub-areas in which your interview performance is found satisfactory.

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

Main Research Area	**Sub-Areas where positions are open**	**Background Subjects**
Theoretical Computer Science `http://www.csa.iisc.ac.in/research/research-theory.php`	Algorithms, Combinatorial Geometry, Computational Geometry, Complexity Theory, Cryptography, Computational Topology, Formal Verification, Secure Distributed Computing.	Data Structures and Algorithms, Discrete Mathematics, Probability Theory, Theory of Computation, Linear Algebra.
Computer Systems and Software `http://www.csa.iisc.ac.in/research/research-compsystems.php`	Ad-hoc/Sensor Networks, Compilers, Databases, Computer Architecture, Distributed Systems, High Performance Computing, Operating Systems, Real-Time OS, Multicore Computing Programming Languages, Scientific Visualization, Software Engineering, Systems Security.	Computer Organization, Data Structures and Algorithms, Engineering Mathematics (including Automata Theory, Discrete Math, Linear Algebra, and Probability), Programming.
Intelligent Systems `http://www.csa.iisc.ac.in/research/research-intellisystems.php`	Data Mining, Game Theory, Mechanism Design, Machine Learning, Deep Learning, Pattern Recognition, Network Science, Reinforcement Learning, Stochastic Optimization, Control of microgrids, Neurotheory, Computational neural modeling, Computational brain imaging.	Discrete Mathematics, Linear Algebra, Probability Theory.

Department of Computer Science and Automation
Option Form for Research Interviews 2017

Please fill up this form and bring it with you at the time of the interview.

1. Name of the Candidate:
2. Application No.:
3. Category: (SC/ST/OBC/GN):
4. Degree Applied for (M.Tech(Research) only / Ph.D only / Both):
5. Date of Interview:
6. Current Affiliation:
7. Highest Qualification:
8. Discipline of Highest Qualification:
9. Name of Institution where studied:
10. Marks/Grade Secured in the Highest Qualification:
11. GATE Score and Rank with Discipline and Year (if applicable):
12. Performance in other Examinations (JEST, NBHM, NET, JRF, etc):
13. Academic Achievements (*include research publications; write overleaf if necessary*):

14. Preference for research areas and background subjects:

Main Reasearch Area (*Tick only one*)	**Sub-Areas**	**Background Subjects**
☐ Theoretical Computer Science	1.	1.
☐ Computer Systems and Software ☐ Intelligent Systems	2.	2.

15. **Signature**: