



Welcome to CSA Research Interviews 2016

Dear Applicant,

It is our pleasure to invite you to attend an interview for a research student position in our department. The interviews will be held during the week of **June 6–10, 2016**, with each day having 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 [IISc Admissions section](#).

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 and should help you to prepare well for the interview.

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

You are welcome to email the CSA admissions committee (admissions@csa.iisc.ernet.in) if you have further questions.

With best wishes,

Jayant R. Haritsa
Professor and Chair
Dept. of Computer Science and Automation
Indian Institute of Science, Bangalore.

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 on 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. A list of representative books for these background subjects is available at
<http://www.csa.iisc.ernet.in/academics/academics-prospectivestudents-books.php>.
 - (b) You will first be examined in your chosen background subjects.
 - (c) This may be followed by more questions related to your choice of research sub-areas.
 - (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 writeup 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
<i>Theoretical Computer Science</i> http://www.csa.iisc.ernet.in/research/research-theory.php	Algorithms, Algorithmic Game Theory, Cryptology, Combinatorial Geometry, Computational Geometry, Computational Topology, Formal Verification, Secure Distributed Computing	Data Structures and Algorithms, Discrete Mathematics, Linear Algebra, Theory of Computation.
<i>Computer Systems and Software</i> http://www.csa.iisc.ernet.in/research/research-compystems.php	Compilers, Computer Architecture, Distributed Systems, Multicore Computing, High Performance Computing, Operating systems, Programming Languages, Real-Time OS, Scientific Visualization, Software Engineering, Storage Systems, Systems Security, Wireless Ad Hoc and Sensor Networks	Computer Organization, Data Structures and Algorithms, Engineering Mathematics (including Automata Theory, Discrete Math, Linear Algebra, and Probability), Programming.
<i>Intelligent Systems</i> http://www.csa.iisc.ernet.in/research/research-intellisystems.php	Communication/wireless/vehicular traffic networks, Deep Learning, Game Theory, Machine Learning, Mechanism Design, Natural Language Processing, Network Science, Pattern Recognition, Reinforcement learning	Discrete Mathematics, Linear Algebra, Probability Theory.



Please fill up this form and bring this 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 Research Area (Tick only one)	Sub-Areas	Background Subjects
<input type="checkbox"/> Theoretical Computer Science	1.	1.
<input type="checkbox"/> Computer Systems and Software		
<input type="checkbox"/> Intelligent Systems	2.	2.

15. **Signature:**