Department of Computer Science and Automation
Indian Institute of Science

Welcome to CSA Research Interviews Aug 2011

Dear prospective ERP research student,

It is our pleasure to invite you for an interview for a possible research student position in our department. To learn more about our activities, please visit us at http://www.csa.iisc.ernet.in. Please prepare well for the interview, on the lines suggested in the note that follows. If you have any questions, please email Prof. Shalabh Bhatnagar (shalabh@csa.iisc.ernet.in) Prof. Chiranjib Bhattacharyya (chiru@csa.iisc.ernet.in) or Prof. L. Sunil Chandran(sunil@csa.iisc.ernet.in).
Very best wishes,
Sincerely,

Y. Narahari
Chairman
Computer Science and Automation
Indian Institute of Science
Bangalore - 560 012

A Note on the CSA Research Interviews

- The interview is intended to be a test of your aptitude and suitability for research in the area chosen by you and thoroughness of background in related basic subjects. The emphasis will be on testing the depth of your understanding of fundamental concepts.
- The interview will be in two parts: a written test of 30 minutes duration on the day of the interview just before the interview session begins (9 AM and 2 PM on each day), followed by an oral interview. The written test will have 10 questions (requiring short answers) on the fundamentals of programming, data structures, algorithms, discrete mathematics, arithmetic, geometry, calculus, logic, probability, and linear algebra. You are expected to attempt all 10 questions.
- The oral interview will commence with a 5 minute presentation by you on the proposed research area and problem (which you would have already discussed with your designated faculty advisor here). In the interest of time, please keep your presentation short and kindly note that projection facilities will not be available. You could bring along with you a one page writeup that you could give to all the committee members. Following this, you will be examined in the basic subjects related to the research area chosen by you (as explained in Table 1), possibly followed by questions in the specific subject area of research chosen by you.

Table 1: List of current research areas where positions are available

	Research Areas	Basic Subjects
1 2 3 4 5 6 7 8 9 10	Pattern Recognition Data Mining Machine Learning Information Theory and Learning Algorithms Reinforcement Learning and Stochastic Control Game theory, Auctions, Computational Economics Social Networks Cognitive Science Statistical NLP Communication and Wireless Networks	Any two subjects of your choice out of Discrete Mathematics, Probability Theory, Linear Algebra, and Optimization Theory
11	Cryptology	Data Structures and Algorithms, Probability theory, Discrete Mathematics
12	Compilers	Data Structures and Algorithms, Regular Languages, Context Free Languages Lexical Analysis, LL and LR Parsing
13 14	Program Analysis and Verification Formal Methods in Software Engineering	Discrete Mathematics, Data Structures and Algorithms, Finite State Automata
15	Graph Theory	Graph Theory, Discrete Mathematics
16	Algorithmic Algebra	Discrete Mathematics, Algorithms
17	Operating Systems	Data Structures and Algorithms, Operating Systems, and one out of Discrete Maths, Linear Algebra, Probability Theory
18 19 20	Distributed Operating Systems Computer Systems Security Adhoc and Sensor Networks	Linear Algebra, Probability Theory, Computer Networking, Operating Systems
21	Computer Architecture	Data Structures and Algorithms, Computer Organization
22	Parallel and High Performance Computing	same as (12) and (21)
23	Combinatorial and Computational Geometry	Graph theory, Data Structures and Algorithms

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. Date of Interview:
4. Current Affiliation:
5. Highest Qualification:
6. Discipline of Highest Qualification:
7. Marks/Grade Secured in the Highest Qualification:
8. College Where Studied:
9. Academic Achievements:

10. GATE Score (if applicable) with Discipline:

11. **Signature**: