CS – CE research in IISc

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IISc Computer history

- First full fledged computer centre in 1969
- First to introduce IBM 360 in India in 1971
- "Advanced" machines from 1973 onwards
- First campus network in 1991-92
- CRAY X refused!
- Currently Blue gene (8192 cores) and other machines, several cluster, 100s of TB storage, the best facility in India, Campus wide optical cable, Wifi, 3G, and 1 GB wired network, more than 6000 nodes

Departments and activities

- 1969: Departments of computer science and automation, computer centre set up

- Late 80's: Computer Centre developed as Super Computer Education and Research Centre (SERC)

- Initial seeding of some computer companies in 1978 – 82

- ECE involved in communication and networking

- EE involved in signal and image processing

- ESE (formerly CEDT) involved in computer and network engineering

Areas of work

- Applications: all departments in the campus

- Theoretical computer science: CSA, SERC

- New computing paradigms: Physics, NScE, Biology, Neural science centre, SERC, ESE, ECE

- Computer architecture: CSA, SERC, ESE

- OS, systems programming, Machine learning: CSA, EE, ESE

- Intelligent systems, Cyber Physical systems, Complex systems: ECE, EE, CSA, SERC, ESE, RBC

- Networking: ECE, ESE

- Machine learning: CSA, ESE

Example Problems

- Reconfigurable computing architectures

- High performance computing

- Secure computing ; testing and validating secure platforms and hardware

- Machine learning methodologies and applications

- Distributed computing for societal applications

- Application specific processors

- Efficient compilation techniques

- High speed networking

- Optical computing

- Energy harvesting

- Low power data centres

Some data

- Number of faculty members directly in CS/CE area: about 20
- Number of students in these areas: ~150
- Funding sources: DEIT, DST, DBT, direct funding from the government
- Number of publications: about 150 per year
- Industry involvement: all the major computer companies have strong involvement