Project Topics for Distributed System Design

One-page proposal due: Feb. 11 (Feb. 18 for FEEDS students).

30-minute presentation: Mid- and late-April.

Final project due: April 25 for all students (penalty for late submission: 15%).

Group project (with at most two students) is allowed subject to approval.

- 1. (Scalability metric) Amdahl's law and Gustafson law, time-constrained, efficiency-constrained, and memoryconstrained scaling.
- 2. (Parallel/distributed environment) MPI and PVM.
- 3. (Parallel/distributed system model) including criteria to access their suitability.
- 4. (Networks of workstations) with applications.
- 5. (Distributed simulation) Petri nets and other related models.
- 6. (Mobile computing) routing, checkpointing, and channel allocation.
- 7. (Information model) switch-based LANS and internet.
- 8. (Routing) Optimal, fault tolerant, and deadlock-free.
- 9. (Scheduling) static and dynamic load distribution.
- 10. (Fault tolerance) various applications.
- 11. (Scalable design) interconnection networks.
- 12. (Survey) Database, file, DSM, heterogeneous computing, OS, etc.
- 13. (Collective communication) multicast, broadcast, barrier sync., etc.
- 14. (RPC and remote message passing) different approaches.

- 15. (Consistency models and applications) different weak consistency models.
- 16. (Peer-to-peer Networks) routing, lookup problems, and peer-to-peer applications