

CPSC 589
Seminar in Computer Science
Research Topics in Computer Science

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Outlines

1. Introduction
2. Research Resources and References
3. Research Topics in Computer Science
4. Survey
5. Presentation
6. Research Proposal

Now we are here!

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Research Topics in Computer Science

Seminar in Computer Science

Computer Science

- CS curriculum Recommendations (ACM/IEEE Computer Society)
 - <http://www.computer.org/education/cc2001/index.htm>
 - Algorithms and complexity (AL)
 - Programming Languages (PL)
 - Architecture and Organization (AR)
 - Operating Systems (OS)
 - Net-Centric Computing (NC)
 - Intelligent Systems (IS)
 - Information Management (IM)
 - Human-Computer Interaction (HC)
 - Graphics and Visual Computing (GV)
 - Software Engineering (SE)
 - Computational Science and Numerical Methods (CN)

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Algorithms and Complexity (AL)

- Automata Theory
- Advanced Algorithmic Analysis
- Coding and Information Theory
- Security and Cryptography
- Parallel Algorithms

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Programming Languages (PL)

- Programming Languages Translation
- Programming Language Design
- Programming Language Semantics
- Programming Language Paradigms
- Programming Languages and Syntax-Directed Tools

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Architecture and Organizations (AR)

- Advanced Computer Architecture
- Parallel Architecture



Operating Systems (OS)

- Advanced Operating Systems
- Concurrent Systems
- Real-time Systems
- Concurrency and Distributed Systems



Net-Centric Computing (NC)

- Distributed Systems
- Mobile Computing
- Cluster Computing



Intelligent Systems (IS)

- Intelligent Systems
- Machine Learning
- Agents
- Robotics



Information Management (IM)

- Database Design
- Distributed Databases
- Data Compression



Human-Computer Interaction (HC)

- Human-Centered Design and Evaluation
- Computer-Supported Cooperative Work
- Graphical User Interface

Graphics and Visual Computing (GV)

- Advanced Computer Graphics
- Image Processing
- Computer Vision

Software Engineering (SE)

- Professional Practice
- Software Engineering
- Advanced Software Design
- Event-driven Programming
- Component-based Computing
- Formal Specification
- Software Engineering and Formal Specification

Computational Science and Numeric Methods (CN)

- Scientific Computing
- Numerical Analysis
- Operations Research
- Modeling and Simulation

Current Research Topics

- Bell labs research
 - <http://cm.bell-labs.com/cm/cs/>
- HP labs research
 - <http://www.hpl.hp.com/research/>
- IBM CS research
 - <http://www.research.ibm.com/compsci/>
- Intel Research and Development
 - <http://www.intel.com/research/>
- Sun Microsystems research
 - <http://research.sun.com/projects.html>

Current Research Topics

- Microsoft research
 - <http://research.microsoft.com/>
- UC Berkeley research area
 - <http://www.eecs.berkeley.edu/Research/Areas/CS/>
- UCLA research
 - <http://www.cs.ucla.edu>
- UCI research
 - <http://www.ics.uci.edu/computerscience/research/index.php>

Current Research Topics

- UIUC research area
 - <http://www.cs.uiuc.edu/research/>
- CMU research
 - <http://www.cs.cmu.edu/research/>
- University of Washington (UW) research summary by grad. std.
 - <http://www.cs.washington.edu/orgs/student-affairs/gsc/seminar/9900/since-quals/>
- Columbia University research fair
 - <http://www.cs.columbia.edu/>




Current Research Topics

- USC research
 - <http://www.cs.usc.edu/Research/Cent-Inst.htm>
- MIT CS Lab research
 - <http://www.csail.mit.edu/research/activities/activities.php>
- Stanford CS research
 - <http://cs.stanford.edu/Research/>
- UMD research
 - <http://www.cs.umd.edu/groups/areas.shtml>
- UBC research
 - <http://www.cs.ubc.ca/research/>

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Current Research Topics

- UW-Madison research
 - <http://www.cs.wisc.edu/research.html>
- Caltech research
 - <http://www.cs.caltech.edu/research.html>
- University College London (UCL) research
 - <http://www.cs.ucl.ac.uk/brandnew/research2/index.htm>
- My research
 - <http://jo.ecs.fullerton.edu/research/>

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Choosing Research Topics

- Your future plan
- Job market forecasting
 - Industry jobs
 - Government jobs
 - Academic jobs
 - Research jobs
 - Own business
- Your interests and goals
- Possible/potential topics
- Preliminary research and survey
- Consult with your advisor

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References

- Graduate Handbook: A Guide to the Master's Degree Program, CSUF Computer Science Dept.
- Master's Project and Thesis Guidelines, CSUF Computer Science Dept.
- CSUF Computer Science, Forms & Documents: <http://cs.fullerton.edu>

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