Systems at University of Chicago

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Computer Science Fields

- Theory of computation
- Algorithms and data structures
- Artificial intelligence
- Numerical and symbolic computation
- Computer-human interaction
- Computer graphics
- Programming languages
- Computer architecture
- Computer networking
- Database systems
- Parallel computation
- Distributed systems
- Operating systems
- Software engineering

University of Chicago's CS Areas

- Theory
  - Discrete Mathematics, Algorithms, Computability Theory, Complexity Theory, Computational Geometry

- Systems
  - Operating Systems, Computer Architecture, Computer Networking, Distributed Systems, Programming Languages, Compilers

- Artificial Intelligence
  - Natural Language Processing, Machine Learning, Computer Vision, Computational Linguistics

- Numerical Computing:
  - Numerical Solutions to PDEs, Scientific Parallel Computing, Matrix Computations, Numerical Hydrodynamics

Systems Laboratories and Faculty
(not covered by other intro talks)

- Distributed Systems Laboratory
  - Web: http://dsl-wiki.cs.uchicago.edu/
  - Lead faculty: Ian Foster (http://www-fp.mcs.anl.gov/~foster/)
- Futures Laboratory
  - Web: http://www.mcs.anl.gov/fl
  - Lead faculty: Rick Stevens (http://www-fp.mcs.anl.gov/~stevens/)
- Computational Institute
  - Web: http://www.ci.uchicago.edu/
  - Faculty Involved: Ian Foster, Todd Dupont, John Goldsmith, Stuart Kurtz, Rick Stevens, Partha Niyogi, Michael O'Donnell, Anne Rogers, Ridgway Scott

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Systems Courses

- Operating Systems (John Reppy)
- Computer Architecture (Anne Rogers)
- Computer Networking & Distributed Systems
  - Networking and Distributed Systems (Ian Foster & Anne Rogers)
  - Grid Computing (Ian Foster)
  - Wireless Sensor Networks (Rick Stevens)

What is Systems? 5

Projects in Systems

- GT4: Globus Toolkit 4
    - http://www.globus.org/
- Falkon: a Fast and Light-weight tasK executiON framework
    - http://dev.globus.org/wiki/Incubator/Falkon
- Swift: Fast, Reliable, Loosely Coupled Parallel Computation
    - http://www.ci.uchicago.edu/swift/
- AstroPortal: A Science Gateway for Large-scale Astronomy Data Analysis
    - http://people.cs.uchicago.edu/~iraicu/projects/Falkon/astro_portal.htm
- Haizea: a VM-based Lease Management Architecture
    - http://haizea.cs.uchicago.edu/
- AG: Access Grid
    - http://www.mcs.anl.gov/research/fl/research/index.php?p=proj_detail&id=1
- Collaborative Visualization and the Analysis Pipeline
    - http://www.mcs.anl.gov/research/fl/research/index.php?p=proj_detail&id=28
- Flash Center Visualization
    - http://www.mcs.anl.gov/research/fl/research/index.php?p=proj_detail&id=14
- TeraGrid: Visualization and Data Analysis Resource
    - http://www.mcs.anl.gov/research/fl/research/index.php?p=proj_detail&id=34

Computational and Storage Resources

- UChicago CS (50+ machines over the UChicago campus)
  - http://tools.cs.uchicago.edu/find_cs_hosts/find.cgi
- UChicago TeraPort (274 processors)
  - http://teraport.uchicago.edu/
- UC/ANL Cluster (316 processors)
  - http://www.uc.teragrid.org/
- PlanetLab (912 nodes at 470 sites all over the world)
  - http://www.planet-lab.org/
- UChicago PADS (9TF, O(1000-cores))
  - http://www.ci.uchicago.edu/pads/
- ANL SiCortex 5832 (5832 processors)
  - http://www.mcs.anl.gov/hs/hardware/sicortex.php
- Open Science Grid (43K-cores across 80 institutions over the US)
  - http://www.opensciencegrid.org/
- IBM Blue Gene/P Supercomputer at ANL (160K processors)
  - https://wiki.alcf.anl.gov/index.php/Main_Page
- TeraGrid (161K-cores across 11 institutions and 22 systems over the US)
  - http://www.teragrid.org/

Seminars

- ## DSL Seminar:
  - Wednesdays at 4:30PM – 6PM in RI405
  - http://dsl-wiki.cs.uchicago.edu/index.php/Wiki:DSLSeminar

- ## PADS Seminar:
  - Wednesdays at 3:30PM – 4:30PM in RI405
  - Contact Michael Papka at papka@mcs.anl.gov

Funding Opportunities

- Research Assistantships
  - Existing projects from Ian Foster and Rick Stevens
  - Others from the CS, CI, or ANL

- Relevant Fellowships
  - NSF: Graduate Research Fellowship Program
    - http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201
  - DOE: Computational Science Graduate Fellowship
    - http://www2.krellinst.org/csgf/index.shtml
  - NASA: Graduate Student Researchers Program
    - http://fellowships.hq.nasa.gov/gsrp/nav/

More Information

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