Significant Results: A Sampling

**Research Objectives**

Improve the Process of Applying Algorithms to Real-World Problems

**Approach**

Organized Around PROBEs
- PROBlem-Oriented Explorations
- Each Starts with a Workshop
- Leads to ongoing research relationships and results

**Broader Impact**

Research / Industry Synergies
- Better theory
- Better applied technology
- Combined with Outreach
- Better algorithms education

**Computer Human Authentication**

- CAPTCHA used by Yahoo! et al
- ESP Game labels web images
  Workshop on Human Interactive Proofs – Palo Alto, January 9-11, 2002

**Privacy in DATA**

- Theory of k-Anonymity
  Workshop on Human Interactive Proofs – Palo Alto, January 9-11, 2002

**Meshing for Blood Flow**

- Meshing with dynamically moving interfaces
  Meshing Infrastructure Workshop – Ithaca, September 18, 2002
  Meshing for CompBio Workshop – Williamsburg, September 19, 2004

**Graph Cuts for Vision and Data Analysis**

- Graph partitioning for combining labeled and unlabeled data

**Sync and Multiserver Scheduling**

- Dramatically improved mean response time
  Workshop on Multiserver Scheduling – Carnegie Mellon, April 18-19, 2004
  CMU/TUe Collaborative Workshop – Carnegie Mellon, July 2-3, 2005

**Dynamic Algorithms**

- Self-adjusting computation
  Workshop on Dynamic Algorithms & Applications – New Orleans, January 14, 2004

**Algorithms in Economics**

  Workshop on Flexible Network Design – Princeton, November 4-5, 2005

**Integrated Logistics**


**SNP and Haplotype Analysis**

- New methods for characterizing and applying haplotype structure
  RECOMB Satellite Workshop on Computational Methods for SNPs and Haplotypes – Carnegie Mellon, February 20-21, 2004

**Web Structure and Algorithms**

- Analysis of “geometric” model having a power law and small separators
  Workshop on Web Structure and Algorithms – Carnegie Mellon, April 9-10, 2004
  WaterMellon Workshop on Extremal Graph Theory – Carnegie Mellon, May 21-23, 2005

**Women@SCS Outreach Roadshow**

REUs – 33 students over the past four summers

http://www.aladdin.cs.cmu.edu