Operations Research + Information Engineering

CORNELL ENGINEERING

Cornell has Preeminent OR PhD Program

- Head-to-head with MIT, Stanford
  OR MEng program is model of excellence
  Yield nearly 50 percent in 2008
- Extremely popular undergraduate major
  Third largest in college (slightly behind ECE, MAE)
  Students are attracted by "business analytics"

Research Areas

Methodological research in statistics, logistics, probability, optimization

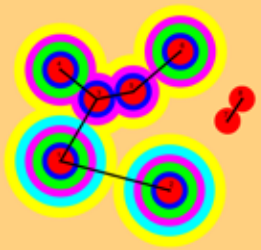
Application interests include healthcare systems, risk management and financial engineering, revenue management

Achievements

- Established presence on Wall Street – Cornell Financial Engineering Manhattan (CFEM)
- Grew research ties with Cornell-Weill ("Disease and Disaster Preparedness")
- Strengthened ties with various Cornell-Ithaca units (e.g., hiring efforts with JGSM, joint degree with CIS, partner in $10M NSF grant on "sustainable computing")
- Extended MEng program in financial engineering to 3 semesters (students spend third semester at CFEM in Manhattan, taking classes taught by (alumni) practitioners)
- Innovated curriculum (e.g., new courses on revenue management, data mining, modeling)
- Continued to be especially successful in recruiting new faculty of highest quality

Challenges

- ORIE student-to-faculty ratio too large relative to College average
- Too few appropriated faculty positions (4 on "soft money," out of 23)
- CFEM is expensive (but is integral to connecting with industry)



Primal-dual approximation algorithm for network design (David Williamson)

Opportunities

- Financial system is undergoing significant redesign, providing an opportunity for significant curricular innovation in ORIE's program in financial engineering and risk management
- Healthcare systems will be forced to become more efficient – ORIE is positioned to inform and participate in the debates, and be at the vanguard in offering appropriate degree programs

Priorities

- Increase ORIE Faculty and reduce course size, to expand research and teaching in healthcare systems, and meet escalating demand for statistics courses
- Increase number of PhD students
- Keep CFEM alive and well despite challenging times on Wall Street
- Introduce new courses and programs on healthcare systems (perhaps a joint degree with Cornell-Weill)
- Maintain ORIE's research preeminence

ORIE Professors David Shmoys and Robert Bland and PhD student Dmitriy Levchenkov (right) used optimization techniques to improve Cornell's final exam scheduling.