

Industry Career for OR Professionals

2008 INFORMS Colloquium

Krishna C. Jha

Director – Research & Development
Innovative Scheduling, Inc.

Gainesville, FL

krishna@InnovativeScheduling.com



Biography/Background

◆ Academic:

- ❖ B.S. in Mechanical Engineering from a state college in India
- ❖ M.S. in Industrial and Management Engineering from I.I.T. Kanpur, India
- ❖ Ph.D. in Industrial and Systems Engineering from University of Florida

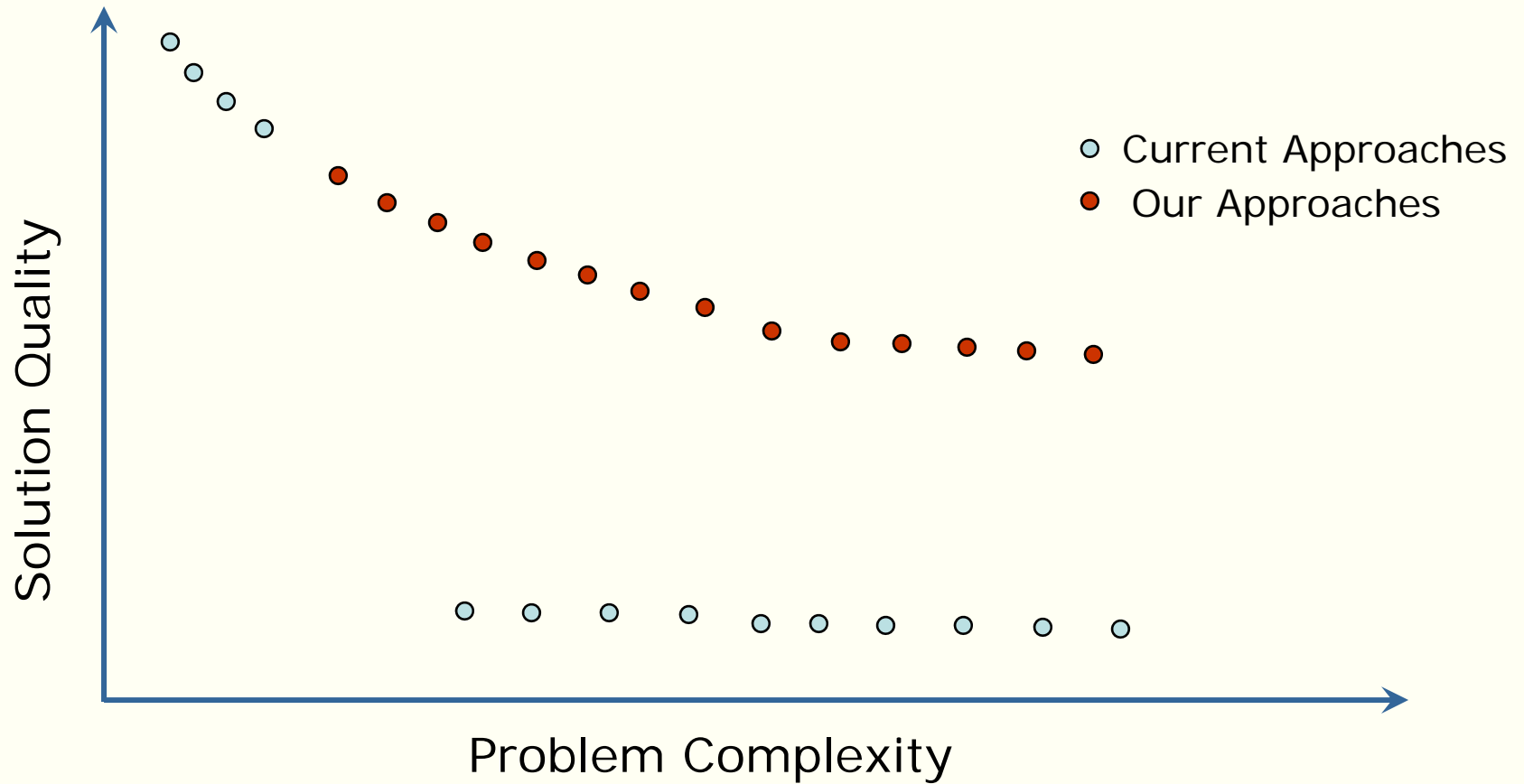
◆ Industry:

- ❖ Worked for four years in an integrated steel plant, Tata Steel. Was involved in OR projects, resource planning, supply chain management, total quality management, benchmarking, and knowledge management.
- ❖ Joined Innovative Scheduling since its inception in 2004. The company is founded by Prof. Ravi Ahuja and is developing optimization based software for the transportation industry.

Core Strength of Innovative Scheduling

- ◆ Ability to solve complex decision problems very efficiently.
 - ❖ Solved several previously unsolved problems.
- ◆ Expertise in a variety of Operations Research techniques:
 - ❖ Linear programming
 - ❖ Integer programming
 - ❖ Network flows and discrete optimization
 - ❖ Heuristic techniques
 - ❖ Simulation techniques
- ◆ Capability to combine a variety of OR techniques to solve large-scale decision problems very efficiently.
- ◆ Specialize in custom software design and development.

Core Strength of Innovative Scheduling (contd.)



Team at Innovative Scheduling

- ◆ We have built an excellent team of young professionals that are well-trained in Management, Industrial Engineering, Operations Research, and Computer Science disciplines.
- ◆ Twenty full-time professionals (12 Ph.D.'s and rest M.S.). Several part-time employees and consultants. Very international and educated in best universities around the world.
- ◆ Awards to the team members:
 - ❖ INFORMS 1993 Lanchester Prize for best contribution of the year
 - ❖ INFORMS 2002 Pierskella Award for best paper in health applications
 - ❖ INFORMS 2006 Daniel Wagner Prize for Excellence in OR Practice
 - ❖ INFORMS RASIG Best Student Paper Awards (2003-2007)
 - ❖ 2007 TRF Best Student Paper Award

My Role in Innovative Scheduling

- ◆ Developing optimizations algorithms, implementing the core engines, and supervise their packaging into decision support systems.
- ◆ Work closely with clients to understand their business needs and ensure that our systems meet their needs.
- ◆ Administrative duties:
 - ❖ Look after day-to-day operations
 - ❖ Coordinate the hiring process

What drives me to work?

- ◆ Challenging work
 - ❖ Need to overcome new technical challenges all the time. Most of the projects involve solving very complex and yet unsolved optimization problems.
- ◆ Excellent work environment
 - ❖ Highly qualified colleagues and flat organizational structure.
 - ❖ Excellent rapport with Prof. Ahuja and other team members.
- ◆ Professional satisfaction
 - ❖ Bringing optimization techniques to the practice.
- ◆ Good financial remuneration
 - ❖ Salary, bonus, and stock

Lessons Learned as a Developer/Manager

- ◆ Be close to the business and understand the end use of your project.
- ◆ Success is measured in terms of meeting expectations of end users, not in terms of technical elegance. Our objective is not only to build models but to create satisfied customers.
- ◆ Be adaptive and continue to learn new skills.
- ◆ Do not be a “YES MAN”. Put forward your honest opinion, even if it does not come into action.
- ◆ Work wholeheartedly in a project, even if it is not the way you wanted.

Difference in Academic and Industry Research

Academia	Industry
Optimality	Implementability
Theoretical Elegance	Return on Investment
Modeling and Algorithms	Graphical User Interface
Mathematical Equations	Visual Information
Clean-Slate Solution	Incremental Solution
One-Step Solution	Interactive Solution (DSS)
No user control	Lot of User Control
Running Time Irrelevant	Real-time Response Time

Lessons Learned as Administrator

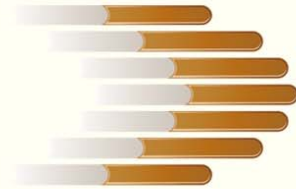
- ◆ Never believe in “it’s not my job” culture.
- ◆ Get yourself blended with the organizational culture.
- ◆ Be courteous and helpful to your colleagues.
- ◆ Follow rules and be communicative.
- ◆ Take ownership of your work.
- ◆ Not only identify problems, but also come up with solutions.

Lessons Learned as Hiring Coordinator

- ◆ Be precise, concise, and truthful in your resume and interviews.
- ◆ Use simple language – others do not know about your research area as much as you know.
- ◆ Do homework about the organization you are applying for.
- ◆ Relevance of your skill to the organization's needs is more important than your strength on its own.
- ◆ Provide good references – they play a very important role in hiring.

Some more tips to succeed in career...

- ◆ Manage expectations – add more than desired value in your work.
- ◆ Maintain consistency in your effort.
- ◆ Make yourself dependable.
- ◆ Learn new skills and be supportive.



Innovative Scheduling

OPTIMIZATION IN ACTION