Ph.D Mentoring Program

Henryk Flashner
Dept. of Aerospace and Mechanical Engineering
Background in Industry

• Industrial experience in aerospace industry
  ▪ TRW Space Technology Group
  ▪ Control Analysis Department

• Duties
  ▪ Internal Research and Development
    ♦ Principal Investigator Large Space Structures Control IRAD
  ▪ Control Analysis of Spacecraft Missions
    ♦ Power Extension Package, 25KW System
Academic Background

• Education
  ▪ B.S and M.S in Mechanical Engineering from Technion-Israel Institute of Technology
  ▪ Ph.D UC Berkeley, Mechanical Engineering
    ◆ Dissertation: Stability of Periodic Systems
    ◆ Major Areas: Control Systems, Nonlinear Dynamics

• Research Areas
  ▪ Dynamics and Control Analysis of Mechanical Systems
    ◆ Spacecraft Control, Control of Rotating Systems, Flexible Systems
  ▪ Nonlinear Dynamics
  ▪ Biomechanics
Academia vs Industry

• Industry
  ▪ Work in a team work setting
  ▪ Communication skills
  ▪ Relatively slow progress to leadership position from which one can exert influence.

• Academia
  ▪ Leadership on projects is immediate
  ▪ Teaching – must like it and be able to do it
  ▪ Independent in selecting research topics
    ♦ Subject to funding opportunities
Industrial Experience

• Influence on Research in Academia
  ▪ Many of my research topics are motivated by applications
  ▪ Formed view that research in engineering needs to be motivated by one of the following
    ▪ Need of solving a problem – develop a new method for solution
    ▪ Need for explaining phenomena
    ▪ Develop techniques that has a chance in a future to real problems

• Allowed for Interaction with Aerospace Industry
  • Consulting for aerospace
  • Joint projects
  • Allowed to develop new research directions (Biomechanics)
Career in Industry and/or Academia?

• Industrial experience is an advantage in subsequent academic career
  ▪ Allows for better interaction with industry
  ▪ Allows for better choice of research topics that can be implemented and useful in applications
  ▪ Provides experience what it takes to produce a device that works

• Transition from industry to academia
  ▪ After 4-5 years in industry
  ▪ After about 20 years in industry