



Extreme Blue

# Crossing the Chasm – Preparing for Life After Undergrad

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09/30/2003 | Extreme Blue

# Agenda

- Personal Intro
- Choices, choices, choices
  - Graduate School – Ph.D.
  - Commercial World
- Commercial Development vs Academic Projects
- Next Steps

# Personal Intro – Who Am I?

- 1989 BS EECS UC Berkeley
- Floating point designer (timing, analysis) – RISC Single Chip (RSC)  
First single chip implementation of POWER architecture
- Primary developer of order/parts tracking of manufacturing logistics systems for RS/6000 worldwide manufacturing
- Webmaster for IBM RS/6000+ Divisions, manager of Internet Tradeshows for IBM RS/6000 Division
- Lead systems/network architect and operations manager for IBM sponsored websites (Kasparov vs Deep Blue, Grand Slam Tennis, 1996 Atlanta Olympic Games, IBM Patent Server)
- Research team lead – network applications, semantic web, reactive security systems
- Founder of IBM's Extreme Blue experience

**Authority to hire 100+ interns and co-ops each year**

# Choices, choices, choices

- Graduate School – Ph.D.
- Commercial World

# Graduate School – Ph.D.

- Instructions
- Decision
- Why Is It Important
- Choosing a School
- Applying
- Succeeding

# Instructions

1. Decide that you really want to pursue Ph.D.
2. Select schools
3. Apply
4. Succeed at school
5. Get the Dissertation done!
6. Look for a job
7. Start the new job

- Ask questions!

2003

Time

2009

# The Ph.D. Decision



- Why?
  - Fortune
  - Fame
  - Fascinating challenge
  - Fear of a real job
  - Fun
  - Fondness of inventing
- Why not?
  - Frustration
  - Failure
  - Fit

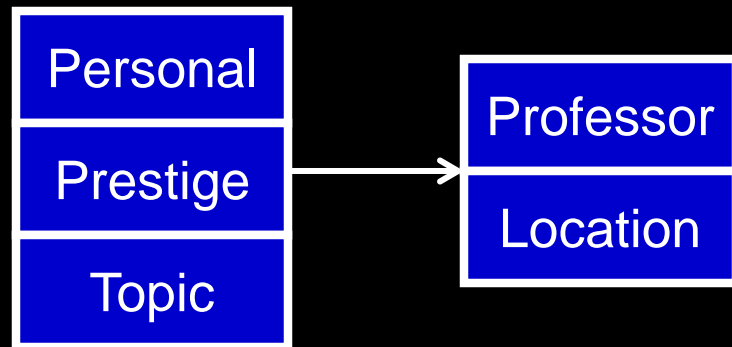
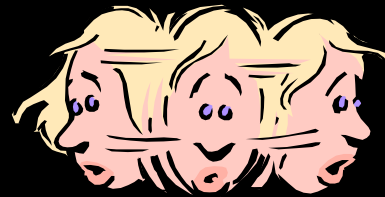


## Why This is Important

- **Is this really the best use of 5+ years of your life?**
- **It may be one of the 3-4 key decisions in your life**
- **If you do it, you may be making a huge mistake**
- **If you don't, you may be making a huge mistake**

# Choosing a School

- Decision parameters
  - Professor
  - Topic
  - Prestige
  - Location
  - Personal
- Recommendation



# What graduate schools are looking for?

- Reputation – Quality of Research and Publication
  - Research credentials – Can you invent?
  - Publications - refereed
  - Conference Presentations
- Survival – qualifying exams are tough... really tough...
  - Grades

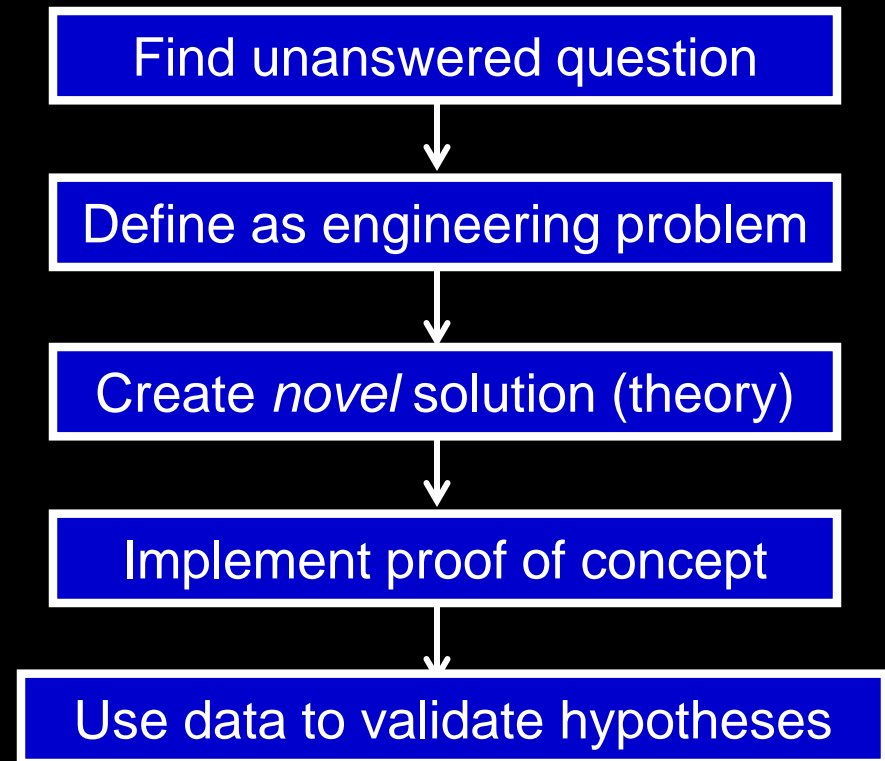
# Applying

- Getting what you want
  - Resume
  - Letters
  - Background
- Prioritize
  1. Letters
  2. Resume
  3. Probably too late to fix background...
- Look for ways to differentiate yourself
  - Show you can *invent*



# Succeeding in Grad School

- Do
  - Work
  - Work
  - Work
  - Rest...nah, work!
- Don't
  - Work
  - Play
  - Work
  - Play



# Commercial World

- It is all about business – today, tomorrow, future
  - Your company's business model, value proposition for customers,
  - Customers' business model and value proposition for their customers
- A job, mission, impact – tradeoffs and career paths
- Choices – specialization/generalist, technical, business, development manager
- Baseline and differentiation
  - GPA – in a good market (>3.0) in today's market (>3.4)
  - Experience – professional internship/co-op experience, Research, Open Source
  - Leadership/professional networking – professional societies, student groups

# Commercial Development vs Academic Projects

- Goals
- Team (sizes, interdependencies)
- Complexity (size, dependencies)
- Time (duration – short, long, open ended)
- Integration (legacy, middleware, platforms)
- Non-functional Requirements (reliability, availability, serviceability, extensibility, performance)
- Methodologies – formal/informal
- Product Lifecycle Management
  
- Code, code, code...
  
- Suggested reading: Design Patterns (GoF), Refactoring (Fowler), About FACE 2.0 (Cooper), Effective Java (Bloch), Effective C++ (Meyers), Essential COM (Box, first chapter best explanation of difference between OO and component based development I have found)

# Next Steps – Any Questions?

# Interview Basics

- What do companies care about?
- What is the interviewer looking for?
  
- Dealing with the specific interview types:
  - Technical
  - Behavioral

# What do companies care about?

- **Meeting customers needs – short term and long term**

Can you make a difference? How can you help?

- **Improving other employee's**

Are you a team player? Leader? Teacher? Catalyst?

- **Gaining options / market flexibility**

Can you deliver now? How fast do you learn? How diverse are your skills?

- **Enhancing reputation / intellectual brand**

Do your ideas attract others? Do you communicate well? Make the business look smart?

- **Supporting their culture**

Would you make a good colleague? Make the world around you more enjoyable?

- **Decreasing headaches**

Are you high maintenance? (talk to your advisor...) Likely to leave? Polarizing?

- **Meeting their headcount and cost targets**

Negotiation is a whole separate talk...

# What is the interviewer looking for?

## What am I looking for in an interview...

- **What context have they provided me**  
What expectations from their resume and written communications
- **Is this person prepared**  
Do they know my business, my plans, offer any thoughts about their role?
- **What do they care about...**  
Not what they say but what they've done
- **How do they solve problems**  
How do they treat alternate ideas
- **What have they learned, how quickly do they learn**

## Do they want to address my problems?

# Technical Interviews

- Simple stuff – reverse link list
- More complicated – what is wrong with this code, how would you improve it, how would you rewrite replace it
  - Syntax
  - Refactorings
  - OO analysis/design, encapsulation – Actually usually solved by refactoring or choice in completely different data structure or algorithms
- Scenario
  - Evaluating how you think as much as what you know/usually never as well defined as you might think.
  - Think aloud – justify every decision by stating assumptions and motivations - because
  - Clarify the scenario – non-functional requirements – connect back to customer value
  - Step by step, usually good to ask questions of interviewer

# Behavioral Interviews/Standard Questions

## ▪ Open-ended questions

- Tell me about yourself. Walk me through your resume.
- Tell me about an experience in which you had to make a difficult decision.
- Tell me about your last experience working in a team.
- Why (fill in blank here)?
- Convince me that I should hire you.

## ▪ Education

- Why are you getting an (fill in degree)? ...at the (fill in the school)?
- Why are you concentrating in...?
- What has been your most rewarding experience or accomplishment at school?
- What subjects do you like best? Least?
- If you are interested in (specialty area), why didn't you go to (well-known school in that area)?
- How has your school experience prepared you for a career in...?
- What is your GPA?

Adapted from "General Questions for Interview Practice", University of Chicago Graduate School of Business

# Behavioral Interviews/Standard Questions (cont)

## ■ Personal

- Will you relocate? Are you willing to travel?
- How does your background fit into...?
- Who are your heroes?
- Who else are you interviewing with?
- Are you interviewing with the company you worked for last summer? Why or why not?
- Why are you better than another candidate for this job?

## ■ Self-assessment

- What makes you want to be a \_\_\_\_\_(position)?
- What is your greatest strength? Weakness?
- What was your greatest failure and how did you overcome it?
- How can you contribute to our organization?
- What is your leadership style?
- Give an example of how you are a team player.
- Where do you see yourself five or ten years from now?

Adapted from "General Questions for Interview Practice", University of Chicago Graduate School of Business

# A mnemonic for interviewers/ing

## Looking for a **STAR**

1. **Situation**: Do they explain what the situation was/background?
2. **Thinking**: Do they offer insight into what type of evaluation/problem solving they used?
3. **Action**: Do they describe what action they took to solve the problem?
4. **Result**: Do they show what the end result was. Was the effect lasting or quantifiable?

[http://www.quintcareers.com/behavioral\\_interviewing.html](http://www.quintcareers.com/behavioral_interviewing.html)