UNIVERSITY OF SAN FRANCISCO

Master of Science in Analytics

Introduction

Interview Skills

Course Goals

- Goals
  - Give an overview of technical interviews
  - Teach technical and non-technical skills needed for technical position interviews
  - Level-set skills for those who do not have a technical background
  - Practice technical interviewing in a structured environment
- Not a goal of this course
  - Preparing a resume / personal branding
  - Techniques for tracking your job search
  - Teaching specific interview questions so they can be memorised
  - Introducing specific places for job searches
  - Negotiating salary (but see “Resources” slide)

Topics

- Things you definitely know
  - SQL
  - Statistics and metrics
  - Machine learning and data challenges
- Things you may know
  - Communication, presentation
  - Soft skills (i.e. intrapersonal and interpersonal skills)
- Things you may not know
  - Data Structures
  - Algorithms

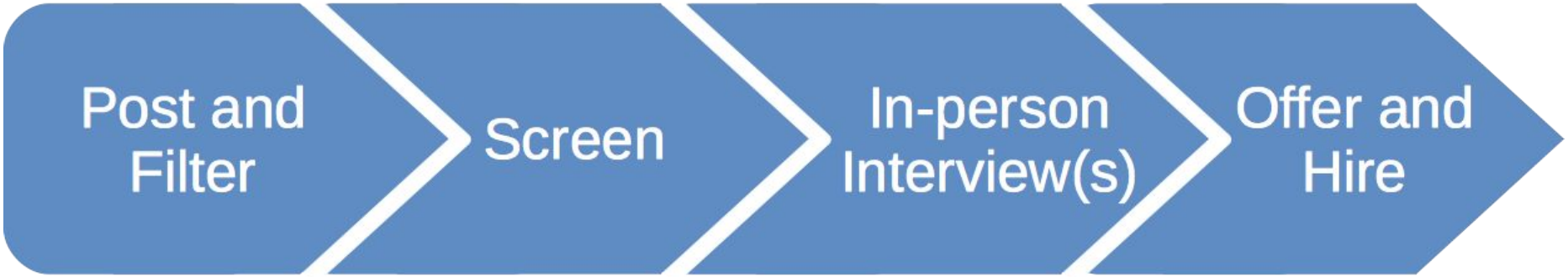
Why Do Companies Hire?

Who Do Companies Hire?

- A candidate who can do the job
  - Deep knowledge in a specific area
  - Broad knowledge in related areas
  - Generally curious and interesting
  - In short: a “T-shaped” candidate
- A candidate who can get along with the existing team
  - A team player
  - Someone with the right attitude
  - Maybe: someone who has external interests
- Who do companies avoid hiring?
  - Candidates who don’t know much about the company
  - Candidates who talk negatively about past experiences
  - Candidates who exaggerate their resumes
  - Candidates who are late to interviews

The Hiring Process

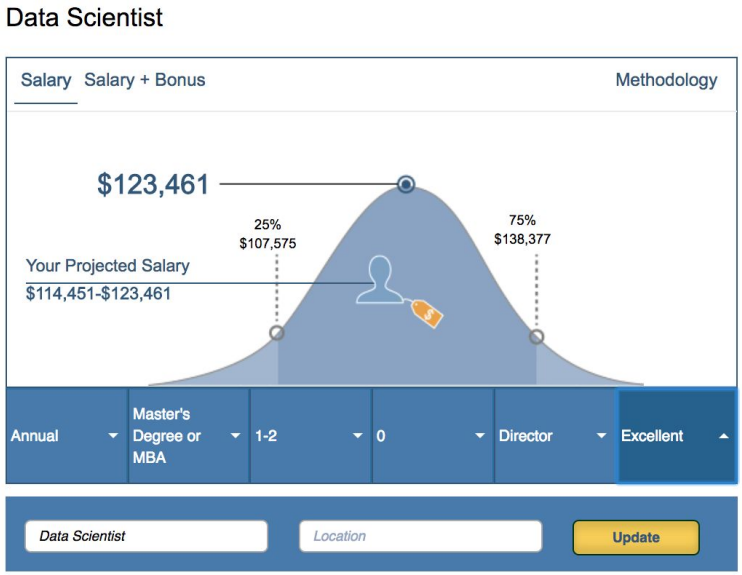
- A typical process (seen from the interviewer's POV) is:

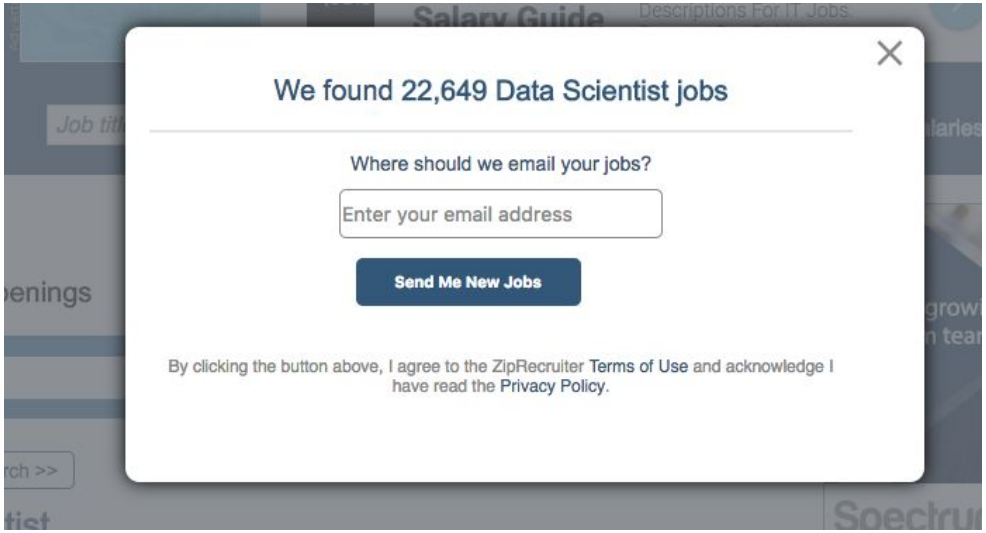


- At each stage, a set of candidates may be excluded
- There may be (many) variations on this, including but not limited to:
  - The place where a position is posted (internally to the company only?)
  - The people who conduct the screen (HR staff?)
  - The process may require background and reference checks before any offer
- Expect entire pipeline to take 2 - 6 weeks
- Typical Screen for tech jobs is a challenge / assignment (more later)

You Are in Demand

- From Salary.com (January, 2018):





- Few people qualify (have training, experience)
  - What do you want to do every day?
  - What industry are you most interested in?

Finding Openings

- Job boards (focused on data science)
  - Indeed
  - KDnuggets
  - Data Elixir
- Your personal network — because lots of jobs are found that way
  - LinkedIn
  - Faculty at USF
  - MSAN colleagues and alumni
  - Go to Meetups
  - Be social (coffee?) with people you don't know
- Have the jobs come to you
  - Write blog posts about something you know
  - Participate on Kaggle
  - Advertise your GitHub accomplishments
  - Talk at a Meetup

You Need a Resume

A Good Interviewer…

- … has objectives
  - Determines whether the candidate has the requisite knowledge to do the job
  - Determines whether the candidate will work with the existing team
  - For multiple candidates, ranks them in order of preference
- … researches each candidate
  - Resume, LinkedIn, etc.
  - This will allow the interviewer to ask specific, in-depth questions
- … asks good questions
  - Always knows the “right” answer before asking (if “the right” answer exists)
  - If the candidate gets stuck, guides or hints about how to answer the question
  - Avoids illegal questions (candidate demographics, etc.) or stereotypes
- … “brings out” the candidate
  - Introduces and give appropriate background of job, team, interview process, etc.
  - Makes sure each candidate is at ease and has what he or she needs to perform best
  - Limits the number of questions; pauses after answers
  - Ensures she or he knows more about each candidate after interview — even the introverts

How Interviewers Score Interviews

- Creates an interview rubric
  - Determines what she would like to hear in advance
  - Scores candidates according to how well the answer matches the rubric
  - Avoid the “halo effect”: having one good / bad portion determine the entire evaluation or assumptions about the candidate based on physical attractiveness, similarity, etc.
- Takes notes
  - Notes should be transcribed as soon as possible, but not during the interview
  - If interview is in a panel, each member should score individually first, then discuss
- Listens to how the candidate answers questions
  - Does candidate get everything right?
  - Is the candidate aware of when things go wrong?
- Looks for paralinguistic or non-verbal cues
  - Candidate’s face and non-linguistic vocalisms may show degree of thinking, stress, etc.
  - Eye contact, smiling, focus, etc. all show interest in the conversation, position, etc.
- Determines whether the candidate is [still] interested
  - Closed posture (arms folded, legs crossed, avoiding eye contact, etc.) can belie discomfort
  - Opposite: open posture (arms apart, facing interviewer, etc.) communicates interest
  - Mirroring actions shows interest and approval between people

Types of Questions

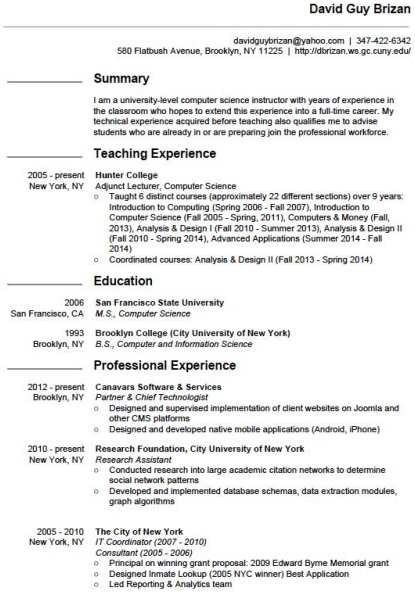
- Introduction
  - Example: “Tell me about yourself”
  - Example: “Tell me about [past professional experience]”
- Personal Awareness (Behaviourial / Historical)
  - Example: “Tell me about a time when you [something positive or negative]”
  - Example: “What is your greatest weakness?”
  - Example: “Tell me about the most effective ways to manage you”
  - Example: “What are the top 3 ways you stay motivated at work?”
- Quasi-technical
  - Example: “How would you solve [some problem]?”
  - Example: “What is your favorite clustering algorithm?”
- Purely technical
  - Example: “Given an array of integers, order them so that even numbers appear before odd ones.”
  - Example: “Given [a set of tables], extract all friends of Eric Cartman.”

How to Answer Questions

- Most importantly: answer the question
  - Ask if you are unsure what the question is
  - Interviewers may deliberately give a candidate less than needed to answer a question — especially true for technical interviewers
  - Make the fewest number of assumptions
- Rehearsals
  - Your answers should be rehearsed to give the clearest, unequivocal answer
  - Your answers should never sound rehearsed; should always sound spontaneous

Introduction Answers

- Be truthful, honest, consistent
- Be positive
  - For example, if you are asked about a job you hated: “I wanted a new challenge”
  - In general, be your “best self”
- Limit answers to 2 minutes or less
- Example: Tell me about yourself — I can base on my old CV



David Guy Brizan

davidguybrizan@yahoo.com | 347-422-6342
580 Flatbush Avenue, Brooklyn, NY 11225 | http://dbrizan.ws.gc.cuny.edu/

Summary

I am a university-level computer science instructor with years of experience in the classroom who hopes to extend this experience into a full-time career. My technical experience acquired before teaching also qualifies me to advise students who are already in or are preparing join the professional workforce.

Teaching Experience

2005 - present, New York, NY — **Hunter College**
Adjunct Lecturer, Computer Science
- Taught 6 distinct courses (approximately 22 different sections) over 9 years: Introduction to Computing (Spring 2006 - Fall 2007), Introduction to Computer Science (Fall 2005 - Spring, 2011), Computers & Money (Fall, 2013), Analysis & Design I (Fall 2010 - Summer 2013), Analysis & Design II (Fall 2010 - Spring 2014), Advanced Applications (Summer 2014 - Fall 2014)
- Coordinated courses: Analysis & Design II (Fall 2013 - Spring 2014)

Education

2006, San Francisco, CA — **San Francisco State University**
M.S., Computer Science

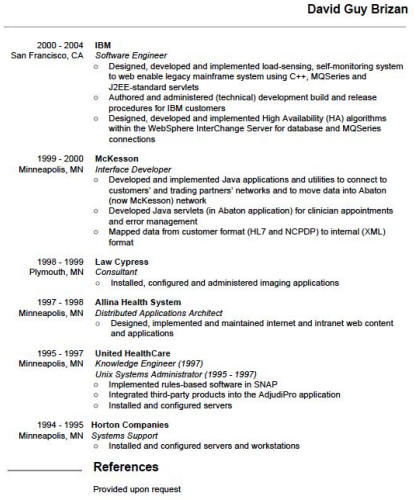
1993, Brooklyn, NY — **Brooklyn College (City University of New York)**
B.S., Computer and Information Science

Professional Experience

2012 - present, Brooklyn, NY — **Canavars Software & Services**
Partner & Chief Technologist
- Designed and supervised implementation of client websites on Joomla and other CMS platforms
- Designed and developed native mobile applications (Android, iPhone)

2010 - present, New York, NY — **Research Foundation, City University of New York**
Research Assistant
- Conducted research into large academic citation networks to determine social network patterns
- Developed and implemented database schemas, data extraction modules, graph algorithms

2005 - 2010, New York, NY — **The City of New York**
IT Coordinator (2007 - 2010)
Consultant (2005 - 2006)
- Principal on winning grant proposal: 2009 Edward Byrne Memorial grant
- Designed Inmate Lookup (2005 NYC winner) Best Application
- Led Reporting & Analytics team



David Guy Brizan

2000 - 2004, San Francisco, CA — **IBM**
Software Engineer
- Designed, developed and implemented load-sensing, self-monitoring system to web enable legacy mainframe system using C++, MQSeries and J2EE-standard servlets
- Authored and administered (technical) development build and release procedures for IBM customers
- Designed, developed and implemented High Availability (HA) algorithms within the WebSphere InterChange Server for database and MQSeries connections

1999 - 2000, Minneapolis, MN — **McKesson**
Interface Developer
- Developed and implemented Java applications and utilities to connect to customers' and trading partners' networks and to move data into Abaton (now McKesson) network
- Developed Java servlets (in Abaton application) for clinician appointments and error management
- Mapped data from customer format (HL7 and NCPDP) to internal (XML) format

1998 - 1999, Plymouth, MN — **Law Cypress**
Consultant
- Installed, configured and administered imaging applications

1997 - 1998, Minneapolis, MN — **Allina Health System**
Distributed Applications Architect
- Designed, implemented and maintained internet and intranet web content and applications

1995 - 1997, Minneapolis, MN — **United HealthCare**
Knowledge Engineer (1997)
Unix Systems Administrator (1995 - 1997)
- Implemented rules-based software in SNAP
- Integrated third-party products into the AdjudiPro application
- Installed and configured servers

1994 - 1995, Minneapolis, MN — **Horton Companies**
Systems Support
- Installed and configured servers and workstations

References

Provided upon request

Personal Awareness Answers

- These questions are similar to “personal insight questions” used for college entrance essays
- As always: be truthful and honest; be positive
- To the fullest extent possible, answer with concrete examples
- Example:
  - Example: “Tell me about a time when you [something positive or negative]”
  - Example: “What is your greatest weakness?”
  - Example: “Tell me about the most effective ways to manage you”
  - Example: “What are the top 3 ways you stay motivated at work?”

Quasi-Technical Answers

- Example questions:
  - Example: “How would you solve [some problem]?”
  - Example: “What is your favorite clustering algorithm?”
- The interviewer wants to see:
  - Whether the candidate has the appropriate background
  - Whether the candidate has a reasonable / solid approach to problem-solving
  - Whether the candidate can “think on [his / her] feet”
- How to answer these questions:
  - If you have direct or related experience, use that in your answer
  - Expound (a little) on any answer you give

Purely Technical Answers

- Example questions:
  - Example: “Given an array of integers, order them so that even numbers appear before odd ones.”
- The interviewer wants to see:
  - Whether the candidate has the appropriate background
  - Application of knowledge and techniques
  - Thinking and talking at the same time — i.e. whiteboarding
- How to answer these questions:
  - If you don’t know the answer:
    - Solve a special case of the problem
    - Discuss the ideas related to the problem and add any useful details you know
  - If you know the answer:
    - Write code that runs
    - Write the code as a function if you can
    - Whiteboard — and discuss running time

Turning the Tables

- Candidates ask questions:
  - To show continued interest in the position
  - To show a passion for the field (technology, current events, etc.)
  - To show a connection to the company's products
- Question guidelines
  - Demonstrate having researched the company
  - Be genuine
- Types of questions candidates can ask
  - What work in the company is like
    - What would be my main responsibilities?
    - How much time do data scientists spend on cleaning data?
  - Product architecture
    - What types of models are you using for CPM?
    - How do you handle the volume of data?
- Do not ask irrelevant questions

Course Administration

- Grades: pass (fail), based on:
  - Attendance and discussion (“attendance points”)
  - Weekly interviews with each other (“interview points”) — you’ll need 1 per week
  - Reviews of interviews (“service points”) — you’ll need 4 per week
  - Grader will keep track of your interviews & service points on Canvas
- Hour 2 Assignments
  - Assignments appear on Canvas, with instructions
  - Hour 2 rooms and questions change weekly and are sent via email
  - Instructions for today’s assignment already on Canvas; instructions already sent
- Slack: #interview_skills for course discussion
- Policies:
  - Excused absences do not excuse you from assignments
  - Switch sections due to conflicts with 7 days’ notice

Our Interviews

- Before class: interviewers get questions and prepare them
- In-class
  - Go to interview room (or stay in main lecture room)
  - Interviewers ask questions
  - Candidates answer questions and record the interview (for 1 interview point)
  - Everyone in the room can give immediate unofficial feedback
- After class
  - Look for email from TA
  - Give review of candidates (for 1 service point each)

Resources

- Videos on technical interviewing
  - Cracking the Data Science Interview [~50:00]
  - Lessons Learned the Hard Way [~ 36:00]
  - Data Science Interviews [~ 15:00]
- Need more interview practice?
  - InterviewBit — also a job site
  - Interviewing.io — Still in private beta, but may be useful when you get
  - InterviewCake — more at programming (with coupon code)
  - Also see coding practice sites: Project Euler and HackerRank
- Interviewing overview (many courtesy of Sam Penrose)
  - Springboard's Ultimate Guide to Data Science Interviews
  - Thirteen thousand, four hundred, fifty-five minutes of talking to get one job
  - Some Reflections on Being Turned Down for a Lot of Data Science Jobs
  - How Not to Bomb Your Offer Negotiation — don't bother with the video