



UNIVERSITY OF
SAN FRANCISCO

Master of Science
in Analytics

Introduction

Interview Skills



About Interview Skills

- Preparation for technical interviews
 - Technical problem-solving skills
 - Communication, presentation
- Review topics; add a few new ones
 - Algorithms & data structures
 - SQL
 - Statistics and metrics
 - Machine learning and data challenges
 - Start with soft skills (i.e. intrapersonal and interpersonal skills)
- Mock interviews



The Interview Process

- A typical process (seen from the interviewer) 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
- Typical Screen for tech jobs is a challenge / assignment (more later)



The Company You Keep

- Categories in data science:
 - Applied machine learning
 - Work for a team, responsible for one or more models
 - Work on feature engineering experiments, defining metrics
 - Work in advertising (eg. CTR)
 - Analytics
 - Work for a company that needs reporting, product insights to drive improvement, ...
 - Perform queries, visualisations, build (some) models, create ad hoc analyses, etc.
- What do you want to do every day?
- What industry are you most interested in?



Finding Openings

- Job boards (focused on data science)
 - [KDnuggets](#)
 - [Data Elixir](#)
- Your personal network
 - Faculty at USF
 - MSAN colleagues and alumni
 - LinkedIn
 - Be social (coffee?) with people you don't know
- Have the jobs come to you
 - Kaggle competitions
 - GitHub



Who Do Companies Hire?

- A “T-shaped” candidate
 - Deep knowledge in a specific area (eg. statistics)
 - Broad knowledge in related areas (eg. mathematics)
 - Also: generally curious and up-to-date with updates in the field
- A team player
- Someone with the right attitude
- 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



How to Be a Good Interviewer

- Objectives
 - Determine whether the candidate has the requisite knowledge to do the job
 - Determine whether the candidate will work with the existing team
 - For multiple candidates, rank them in order of preference
- Research each candidate
 - Resume, LinkedIn, etc.
 - This will allow you to ask specific questions
- Ask good questions
 - If there's a "right" answer, you should know it
 - If the candidate gets stuck, you should be able to give a simplified version of the question or hints about how to answer the question
 - Avoid illegal questions (candidate demographics, etc.) or stereotypes
- "Bring out" the candidate
 - Introduce yourself and give appropriate background of job, team, interview process, etc.
 - Make sure each candidate is at ease and has what he or she needs to perform best
 - Limit the number of questions you have; pause after answers
 - Ensure that you know more about each candidate after interview — even the introverts



How to Score Interviews

- Create an interview rubric
 - Determine what you would like to hear in advance
 - Score candidate according to how well the candidate's 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.
- Take 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
- Listen to how the candidate answers questions
 - Does candidate get everything right?
 - Is the candidate aware of when things go wrong?
- Look 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.
- Is the candidate 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



You Need a Resume

- Keep your resume to 2 pages, max
 - 1 page may be enough
 - ... unless you are looking for a job in academia
 - Give more space and detail to the more current positions / projects, accomplishments
 - Remove outdated or irrelevant positions
- Resume should be human and machine-readable
 - Sections: contact information, skills, experience (not nested), education
 - Avoid: objectives, “references upon request”
- Be prepared to discuss anything on your resume
- List projects you worked on (including USF)
 - Be prepared to discuss your involvement in each project
 - Create a public link to your repository (GitHub, etc.)
 - Explain the impact of the project on the business / end-user, etc.
- “Make a custom resume”
 - Philosophy # 1: Have one resume
 - Philosophy # 2: Write your resume according to the job req



Remove Images & Symbols

Overleaf

PROJECT

HISTORY & REVISIONS

SHARE

PDF

JOURNALS & SERVICES

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Paul Roth ▾

Source

Rich Text

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Preview

Manual

Auto

up-to-date and saved

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1 #####
2 % This is an sample CV template created using altacv.cls
3 % (v1.1, 21 November 2016) written by LianTze Lim (liantze@gmail.com). Now compiles
4 % with both XeLaTeX and LuaLaTeX.
5 %
6 % It may be distributed and/or modified under the
7 % conditions of the LaTeX Project Public License, either version 1.3
8 % of this license or (at your option) any later version.
9 % The latest version of this license is in
10 % http://www.latex-project.org/lppl.txt
11 % and version 1.3 or later is part of all distributions of LaTeX
12 % version 2003/12/01 or later.
13 %
14 % If you need to pass whatever options to xcolor
15 % \PassOptionsToPackage{dvipsnames}{xcolor}
16 %
17 % If you are using \orcid or academicons
18 % icons, make sure you have the academicons
19 % option here, and compile with XeLaTeX
20 % or LuaLaTeX.
21 % \documentclass[10pt,a4paper,academicons]{altacv}
22 % \documentclass[10pt,a4paper]{altacv}
23 %
24 % AltaCV uses the fontawesome and academicon fonts
25 % and packages.
26 % See texdoc.net/pkg/fontawesome and http://texdoc.net/pkg/academicons for full list
27 % of symbols.
```

YOUR NAME HERE

Your Position or Tagline Here

your@email.com

000-00-0000

Address, Street, 00000 County

www.homepage.com/

@twitterhandle

linkedin.com/in/yourid

github.com/yourid

EXPERIENCE

Job Title 1

Company 1

Month 200X - Ongoing

Location

• Job description 1

• Job description 2

Job Title 2

Company 2

Month 200X - Ongoing

Location

• Job description 1

• Job description 2

PROJECTS

Project 1

Funding agency/institution

Project duration

Details

Project 2

Funding agency/institution

Project duration

A short abstract would also work.

A DAY OF MY LIFE

MY LIFE PHILOSOPHY

"Something smart or heartfelt, preferably in one sentence."

MOST PROUD OF

Fantastic Achievement and some details about it

Another achievement more details about it of course

Another achievement more details about it of course

STRENGTHS

Hard-working

Eye for detail

Motivator & Leader

C++

Embedded Systems

Statistical Analysis

LANGUAGES

English

Spanish

German

EDUCATION

Ph.D. in Your Discipline

Your University

Sept 2002 - June 2006

Thesis title: Wonderful Research

M.Sc. in Your Discipline

Your University

Sept 2001 - June 2002



Types of Questions

- Introduction
 - Example: "Tell me about yourself"
- Personal Awareness
 - Example: "Tell me about a time when you [something positive or negative]"
 - 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."



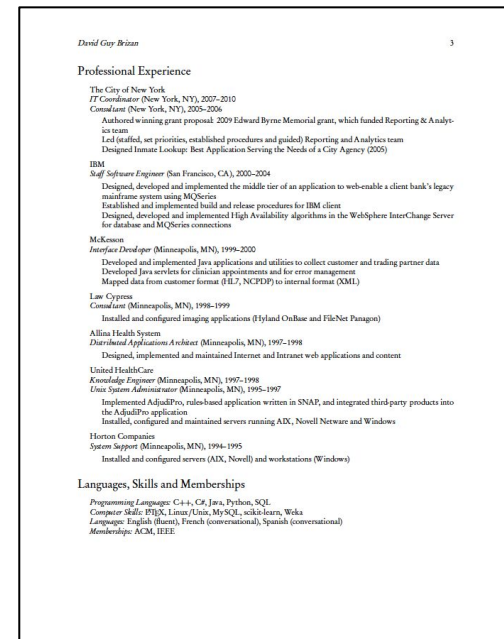
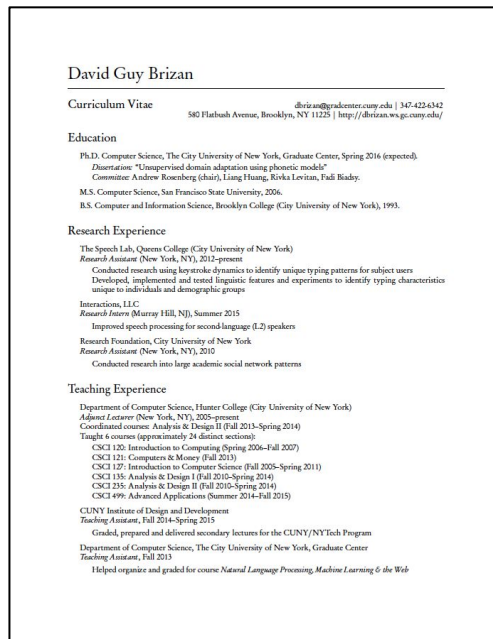
How to Answer Questions

- 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
 - Make the fewest number of assumptions
- Rehearsals
 - Your answers should be rehearsed to give the clearest, unequivocal answer
 - Your answers should sound spontaneous



Introduction Answers

- Be truthful / honest
- 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](#)





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: “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



Whiteboard Interviewing

- What is whiteboarding?
 - Candidate is given a blank writing surface (chalkboard, markerboard, paper, etc.)
 - Candidate is given a technical question and expected to write a working solution
 - Common in technical interviews
 - Measures candidate's problem-solving and communication skills
- Tips to succeed at whiteboarding:
 - Write the question and any details you might forget (examples, guidelines, etc.)
 - Write legibly (i.e. large letters, even spacing, predictable indentation, etc.)
 - Use the space on the whiteboard efficiently — eg. leave space between lines of code — but do not exceed the size of the canvas
 - Ask questions and talk through your solution while you write
- If you don't do well:
 - Don't take it personally — highly qualified people have tried and failed — it is a completely artificial exercise
 - Try, try again (practice with mock whiteboarding interviews)



Whiteboarding — Example

“Write code to take the derivative of a polynomial”



Notice how interviewer and candidate cooperate on this question



Candidate Questions

- 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?





InterviewStream

- Assignments will all use InterviewStream
 - URL: <https://management-usfca.interviewstream.com/>
 - You should have received an email from "InterviewStream"
- When you log in



- More importantly

<p>Welcome, David Guy</p> <p>Welcome to InterviewStream! Here you will find valuable resources to assist you with your interviewing development. Before you get started, make sure to view our InterviewWebinar and InterviewSuite that feature expert tips and advice on all things interviewing. Once ready, you can then conduct interviews and receive feedback from anyone with an email address.</p>	 <p>CONDUCT AN INTERVIEW</p>	 <p>WATCH MY INTERVIEW</p>
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Assignments

- Weekly assignments:
 - Groups will be assigned to rooms
 - Each person in a group acts as the candidate
 - One person in the group will interview; others will observe
 - Everyone in the group is responsible for giving feedback ... later
- Feedback
 - Always include your name and email
 - InterviewStream has a set of pre-defined categories and ratings
 - In addition to what InterviewStream provides, add in the narrative:
 - Correctness — answer correct?
 - Areas for improvement — how the candidate could improve
 - Strengths — what the candidate did well

Assessments	
Non-Verbal Communication	
Anonymous (1/25/2017 7:57:37 PM)	
Eye contact	Needs Improvement
Upright posture	Excellent
Friendly demeanor	Good
Self confidence	Excellent
Verbal Communication	
Message content	Needs Improvement
Filler words (umm...like)	Excellent
Responses clear & concise	Good
Emphasize strengths	Needs Improvement
Proper grammar / avoids slang	Good
Convey decision making ability	Good
Others	
Answer the question / stick to the subject	Needs Improvement
Ability to describe past experience	Needs Improvement



Course Administration

- Grades:
 - Pass (fail)
 - Conduct a weekly interview and performing self-assessment
 - Review all other candidates in your group each week (“service points”)
- Grader will keep track of your interviews & service points on Canvas
- Slack: [#interview_skills_2017](#) for course discussion
- Policies:
 - Excused absences do not excuse you from assignments
 - Switch sections due to conflicts with 7 days’ notice
- [Hour 2 room assignments](#) will change weekly