Resumes and Interviews

WARNING: These are my own *personal* opinions

Resumes of programmers are uniformly awful

Why are resumes bad?

- Nobody teaches us what companies are looking for.
- Much of the advice on resume-writing from other industries doesn't necessarily carry over to tech resumes.
- Many candidates are liars.

Recruiters spend about 10 seconds looking at your resume.

Nobody cares about you, yet.

- Resume screening is just pattern matching
- The output of the resume screening step is a decision.
  - I want to quickly know if I should spend the time for a phone screening or a face to face interview
  - Anything you say about yourself is just an annoying and potentially harmful distraction.

Lesley Carhart @hacks4pancakes

Please be cautious about excessive images and style on your resume. Anything submitted outside direct email may likely be converted to text. This can cause readability nightmares. And barring hilarious memes, I never want to see images in lieu of critical work experience content!

29 Likes	**4** Retweets
Apr 24, 2018 at 2:53 PM	via **Twitter for iPhone**

About Me

Seriously?

About Me

- I'm currently a senior physics major at [redacted] I love mathematics and problem solving, and have carefully honed these skills over my four years in college. I'm interested in modeling dynamic systems as well as computer and electrical engineering.

Hobbies

- What about your hobbies section?
- What about showing you are a well-rounded and socially adjusted person?

Delete it!

Relevant Hobbies

- What about relevant hobbies?
  - Won a hack-a-thon? List it
  - Contribute to an FOSS project? List it.
  - Have tickets to Hamilton or Les Miserables you will give to your interviewer? Staple them to your resume! *

* May only work on me

Objective Statement

- I don't like them.
  - They're vague
  - They're full of weasel words
- I know why I have your resume. You don't have to tell me.

Objective Statement

Objective **Help L3 Communications in designing, testing, debugging, and writing high performance simulation software.**

At least I know the applicant changed this one line before sending their resume in.

Objective Statement

Objective
To obtain a challenging full time opportunity in the field of computer science using my technical and analytical skills.

Objective Statement

Objective

Seeking new opportunities with emphasis on a dynamic environment.

Objective Statement

OBJECTIVE: Seeking Full Time Job Opportunity.

Objective Statement

OBJECTIVE: Seeking Full Time Job

You won't get much time

- HR will not spend much time reading your resume
- Lead with the most important
  - Education
  - Skills
  - Jobs
  - Everything else.

Education

Education
University of North Texas, Denton, Texas

B.S. in Computer Science, Expected graduation date: May 2015

Minor in Mathematics GPA: 3.2

- What degree? From where? When?

Skills

- HR is looking to quickly pattern match.
  - Break out your languages, operating systems, or tools in a separate easy to find section up top.
- List them in order or familiarity/expertise
- Only list languages in which you have experience.
- We know new grads won't have a lot in the skill section.

Potential Stigma

- Enterprise languages
  - VB, VB.NET, all of .NET.
  - If you aren't applying to a position with those languages people may assume you are less skilled

- Knowing only one or two languages
  - The more you've coded, the more things you've built, the more problems you've solved and the more languages you've experienced
  - A single language can imply
    - You haven't experienced and solved many problems
    - You have trouble learning new technologies

Potential Stigma

- Version Focused
  - Candidates who list every version of operating system or language
    - “Windows 7, Windows 8, Windows 10. Centos 6.0, 6.3, 6.4, Ubuntu 10, Ubuntu 11”
    - “Python 2.5, Python 2.7, Python 3.0”
  - Why padding?
  - Does the candidate think we will be impressed?

Current Address:

Education:

; Major GPA: 3.34/4.00 May 2015

Computer Engineering, B.S.

Honors:

Semester Honors (3) and Dean's List (4)

Experience:

Summer 2012, 2013, & 2014

- Feature design and software maintenance for a Java web application deployed for a software as a service (SAAS) web-based forms company. Features included redesign of the form creation process optimization of performance, and isolation/resolution of customer issues.
- Integrated new Javascript interface with existing MySQL database and Tomcat web server software.
- Developed improved lock-free queue for inter-thread communications in C++ within high performance real time protocol engine running on Linux. Researched, prototyped, and tested several design/implementation options, and assisted with integration.
- Developed other applications for customer use that demonstrated specific product functionality.

January 2012 – May 2013

- Supervised a lab section for
- Assisted students with labs and homework and graded these assignments.

June 2011 – August 2011

- Performed work on 3D models for new and existing designs.
- Modified and prepared fabrication drawings for manufacture.

Skills:

- 4 years of experience with C and 3 years of experience with Java
- Experience with programming in Javascript. MySQL, C++, Assembly, Matlab, Verilog, Bash, Scheme, and Python.
- Experience with network, embedded, and multi-threaded programming
- Familiar with Git, CVS, and Subversion version control systems.
- Familiar with Linux.

Skills

Technical Expertise

Technologies	:C, C++, Java, SQL, SOA, SOAP, XML, XSLT, J2EE, HTML, Shell Scripting, JavaScript
Tools	: Sabre QIK, Sonic ESB, DXSI, Eclipse, NetBeans, QNX, SVN, P4V
Development Methodologies	:Agile, Waterfall

Do they know Unix? Windows?

To obtain a challenging full time opportunity in the field of computer science using my technical and analytical skills.

Education

[redacted] May 2015
Master of Science in Computer Science GPA: **3.87**
[redacted] April 2011
Bachelor of Engineering in Electronics and Communication Engineering, First Class with Distinction 77.69%

Technical Expertise

Technologies	: C, C++, Java, SQL, SOA, SOAP, XML, XSLT, J2EE, HTML, Shell Scripting, JavaScript
Tools	: Sabre QIK, Sonic ESB, DXSI, Eclipse, NetBeans, QNX, SVN, P4V
Development Methodologies	: Agile, Waterfall

Good placement

Relevant Coursework

Design & Analysis of Computer Algorithms, Cloud Computing, Distributed Computing, Database Design, Big Data Analytics, Machine Learning, Computer Architecture, Information Retrieval.

Not all relevant

Work Experience

[redacted]

- Worked on logging module of Auto control system for rail road locomotives using C++.
- Performed bug fixes and tactical code cleanup.

[redacted]

- Developed ESB middle ware services for achieving loose coupling between frontend and backend.
- Designed and developed an UI module for adding a new business functionality 'Ramp Clear' for one of the biggest Airline operator in Europe using agile development methodology.
- Completed five proof of concepts for incorporating new functionalities in UI.
- Handled the responsibility of project release coordinator, maintaining proper communication on daily basis and effort tracking for the whole team between onsite and offshore.
- Received **5/5** rating and performance band of '**A**' during appraisal. Six Sigma - Green Belt certified.

Academic Projects

VM placement and scaling Fall/2014
- Created VMs to run simulated workloads which mimic tasks extracted from Google cloud traces.
- Designed a dynamic VM placement algorithm and scaling for simulated and real workloads.

Asynchronous GHS Algorithm for forming MST in Asynchronous Distributed Network Fall/2014
- Used threads to simulate the processes, with randomized delay in message passing to create a virtual asynchronous system.
- Shared memory using three dimensional vectors were used for message passing.

Hadoop Map Reduce Fall/2014
- Implemented multiple map reduce programs.
- Analyzed how the files are stored and tasks are carried out in a Hadoop Distributed File System.

Class work makes up for less work experience

Virtual Modified V6 File System Fall/2013
- Created a new virtual file system which simulates a modified version of V6 UNIX file system inside a file.
- The memory size and number of Inodes are customizable. Implemented with C using primitive system calls.

Online Educational Loan Management System Spring/2011
- Worked on the business logic of a website, which enables college students to register and apply for educational loan.
- The website has two different logins, one for student and another for administrator who can view and approve the loans.
- The implementation of project was done using JSP, Java Servlets and mySQL.

Secure Data Collection in Wireless Sensor Networks Using Randomized Routing Fall/2010
- Programmed the working logic of a 2 layered network security for routing traffic across randomized path.
- Implemented using Java and applied RSA key algorithm for encryption.
- Efficiently handled dual layer security which encrypts and protects data against any attack.

Extra/Co-Curricular Activities

- [redacted]

Don't care.
I've already made up my mind by this point

Skills

Languages:

- ***Proficient with C++ (7+ years)***
- Other programing skills ***(1+ years)***: ***C,*** *Java, PHP, SQL, Phyton, Open GL, Matlab, Open CV* and Bash Scripting

Good delineation between what they know, and what they don't

Skills

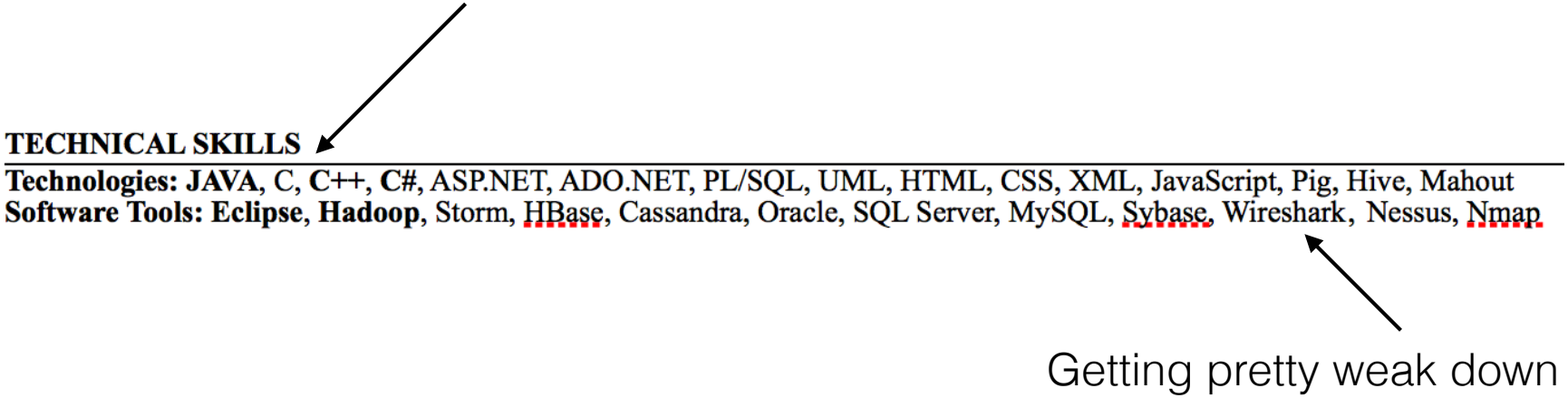
Languages:

- ***Proficient with C++ (7+ years)***
- Other programing skills ***(1+ years)***: ***C,*** *Java, PHP, SQL, Phyton, Open GL, Matlab, Open CV* and Bash Scripting

Do they know Unix? Windows?

Skills

Why is C listed second but not bolded?



Getting pretty weak down here

New grads are expected to have short skill sections

Skills

- Don’t assume we know what operating systems you know.
  - UTD requires a course in Unix.
  - UTA and UNT don’t.

Don’t claim “expert”, ever

TECHNICAL SKILLS

- Expert: Android; Java; Python; API Development;
- Advanced: C++; Javascript; Scala; JLex; Cup; Django; Flask;
- Beginner: Swift; PHP; Play! Framework; Laravel;

- Do not claim an expert skill unless:
  - You wrote the language
  - You are on the list of contributors to gcc, in which case you can claim expert of gcc only

Skills

- Listing every language you've ever worked with is dangerous.
  - Many interviewers will view any item on your resume as far game.

Job History

- You should not include a full history of every role you've ever had. Include only the relevant positions. Only include the ones that make you a more impressive candidate.
    - If you're a new grad it's understood you may not have much employment history.

No Weasel Words

- Weasel Words are impressive sounding verbs that make it sound like you did something useful
  - Participated
  - Proposed
  - Analyzed
  - Responsible for

Remove them.
Replace with definitive action

Lesley Carhart @hacks4pancakes

In less surprising news, after 5 years of clinics, 9/10 resumes I review still fail to provide impact or quantified context to most of their work experience bullets.

164 Likes	**20** Retweets
Apr 23, 2018 at 10:14 AM	via **Twitter for iPhone**

Perfect Candidate

My perfect new college grad resume would have:

1. A compiled language, preferably C/C++
2. An interpreted language, preferably python
3. gcc/gdb or clang/lldb
4. linux
5. A version control system such as git, SVN, perforce
6. A functional language
7. A github repository

Spelling

- Spell check it.
- Spell check it again.
- Have someone else read it.
- Read it word by word backwards.
- If you can't be bothered to check every word on a single sheet of paper why should I believe you will write code that works ?

Spelling

Skills

Langauges: C, C++, Python, Ruby, SQL

Tools: git, gdb, valgrind, cmake

Spelling

Languages:

- ***Proficient with C++ (7+ years)***
- Other programing skills ***(1+ years)***: ***C,*** *Java, PHP, SQL, Phyton, Open GL, Matlab, Open CV* and Bash Scripting

Spelling

- A typo will get your resume placed in the trash no matter how qualified you appear.

Secret Tip

- A resume generated with LaTeX will *always* get me to put the resume on the top of the pile.
  - Technical credibility
    - Think of it as a programmer/mathematician secret hand shake.
  - Shows attention to detail, e.g. ligatures, kerning
  - Pleasure to read

Dave's Resume

[redacted]

Objective:

Looking for an opportunity to work on exciting and challenging projects for an organization that can make use of my expertise in software design and object-oriented language skills.

Professional Experience:

L-3 Communications - Link Simulation and Training **2006-Present**

Senior Software Engineer II ***2010-Present***

- *Technical Lead – Grey Eagle CMST UAV Maintenance Trainer*
  - Senior Software Engineer making critical architectural design and implementation decisions for the Grey Eagle CMST UAV Maintenance Trainer
    - Overseeing day-to-day low-level design and development tasks in addition to the training and grooming of a team consisting of Junior and Senior team members.
    - Integral to the implementation of a hybrid between Waterfall and Scrum Software Development Methodologies to meet unique schedule and delivery demands, while still maintaining contractual commitments to the customer
  - Integrated the Object Modeling Group's Data Distribution Service to facilitate a Data-Centric Publish/Subscribe architecture.
    - Over 15 separate applications coordinating simulation activities
  - Implemented multiple levels of automated testing at both the unit and system levels
    - Led to demonstrable increase in software quality, assurance that assigned tasks were complete to an acceptable level, and built-in regression testing.
  - Assisted in project planning, budgeting and scheduling as required by Team Lead in response to intense scrutiny from upper management

- *Technical Lead - F/A-18 Roadmap Procurement Program - Weather Enhancement ECP*
  - Acted as Technical Lead making critical design and implementation decisions as delegated by the Integrated Product Team lead
  - Designed and implemented new software components, injecting modern software engineering principles into a 20+ year-old software baseline with minimal impact and maximum effect.
  - Responsible for deriving customer desires and intents into concrete requirements, and finalizing them into software deliverables.

- *UAV Software Lead – Multiple internal Projects Relating to UAV Systems*
  - Acted as Software Lead for UAV systems for SimuScout program, as well as development of technology demonstrations for AUVSI and I/ITSEC industry trade shows
  - Responsible for planning, scheduling, task identification, risk mitigation, and cost-benefit analysis with a fluid project roadmap.
  - Integrated Component-Based Architecture utilizing the OMG Data Distribution Service, to allow for trainer components to operate in a heterogeneous computing environment.
  - Integrated simulated components with real aircraft avionics, requiring reverse engineering of undocumented third-party interfaces.
  - Delivered very stable software baseline proven to run uninterrupted for extended periods of time

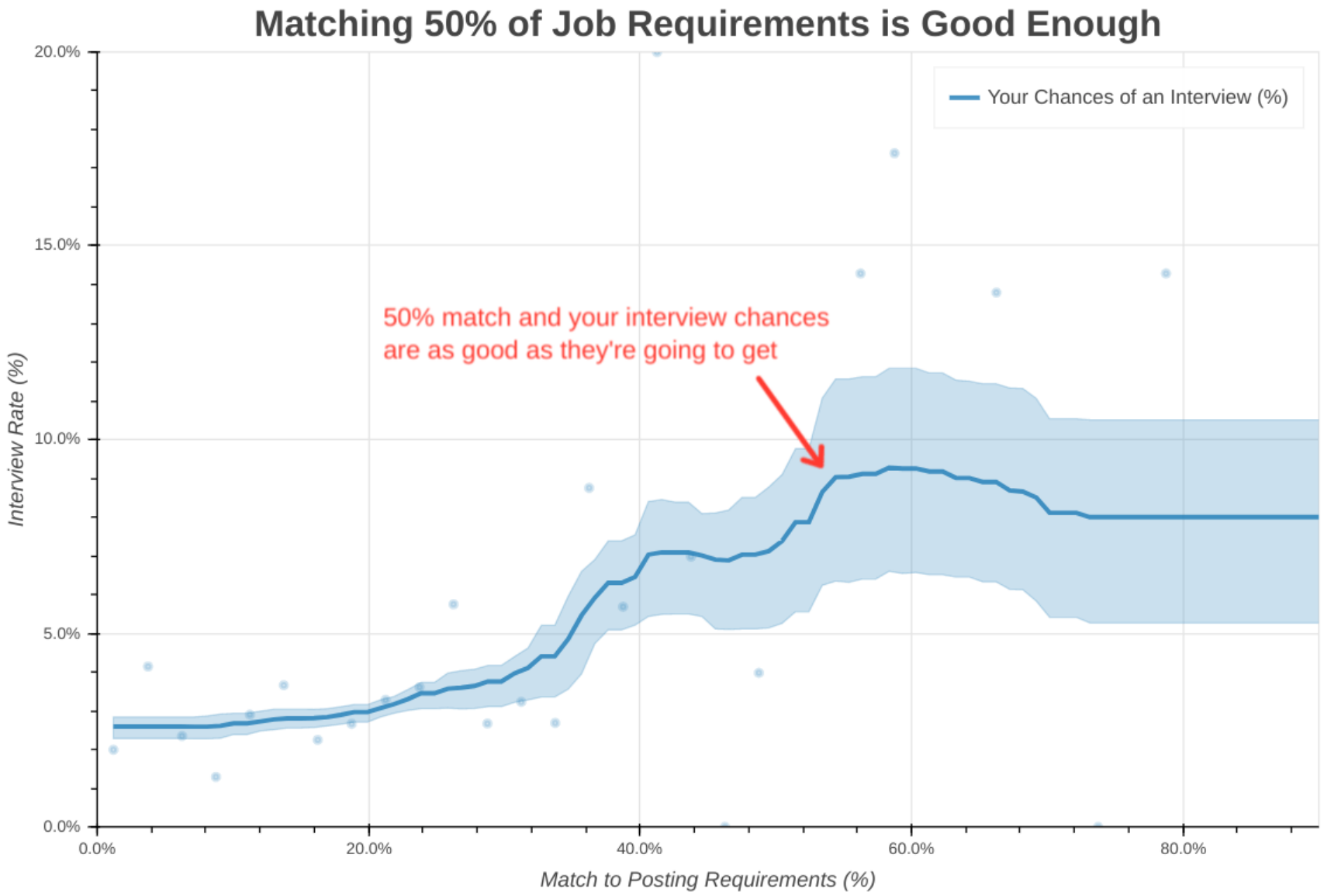
- *Software Developer – F/A-18 Roadmap Procurement Program – NASMP 1.4 ECP*
  - Part of a small team which led a major redesign of the networking subsystem of the F/A-18 Trainer to conform to the Navy Aviation Simulation Master Plan v1.4
  - Integrated free/open source libraries (such as Boost) to enhance quality of the resultant design and decrease time-to-market.
  - Integrated functional and non-functional quality attributes into architecture in response to customer and internal requirements.

Technical and Specialized Skills:

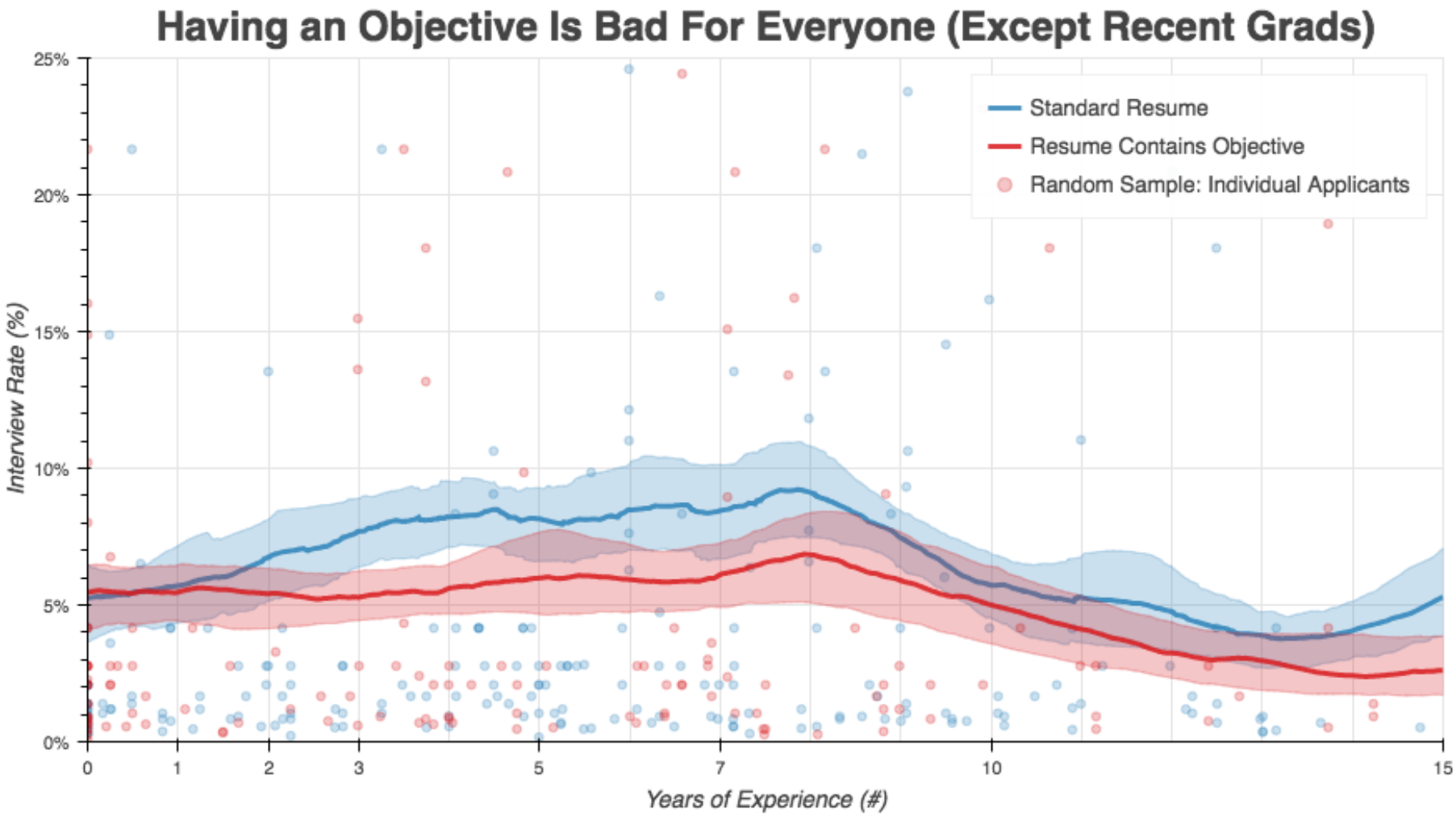
- Languages/Technologies: C++, C++ Templates, Python, C, C#, Boost C++ Libraries, Android (Java), ClearCase, SCons, Waf, Perforce, Subversion, Git, Design Patterns, Networking, DDS, HLA, DIS, SQL, Protocol Buffers, OpenGL, OpenCL
- Operating Systems: OSX, Windows, Linux (Red Hat and Derivatives)

Education and Achievements:

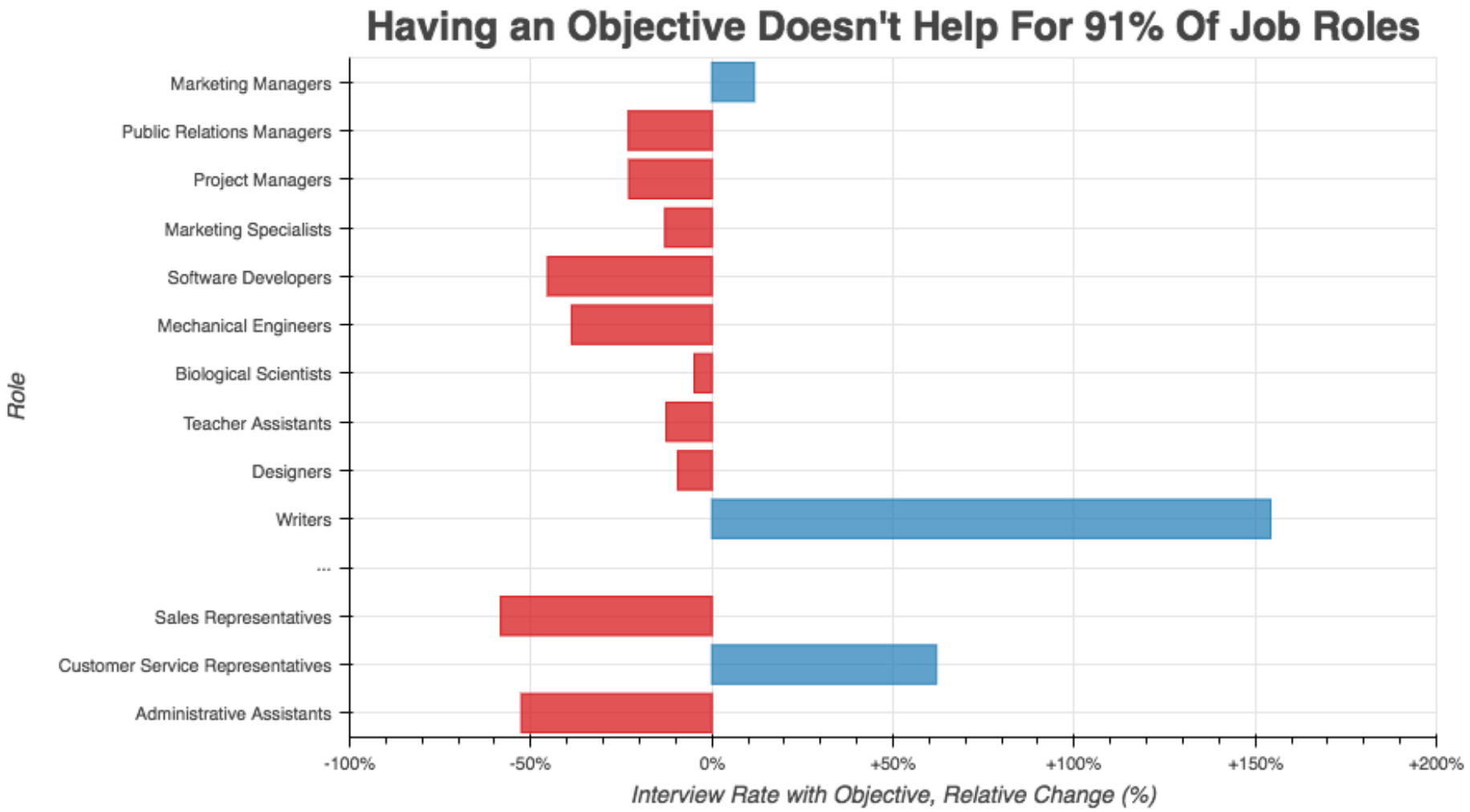
- University of Texas at Arlington – M.S. Software Engineering (2013-2015 expected, 4.0 GPA)
- East Stroudsburg University of Pennsylvania – B.S. Computer Science
- Software Engineering Institute - Software Architecture: Principles and Practices Training
- Software Engineering Institute - Software Architecture Design and Analysis
- Authored an internal whitepaper on high-precision intra-computer process synchronization using COTS hardware and software solutions as a cost and technology discriminator.
- Awarded multiple “Outstanding Achievement” awards in recognition of my contributions.



https://talent.works/blog/category/science-of-the-job-search/

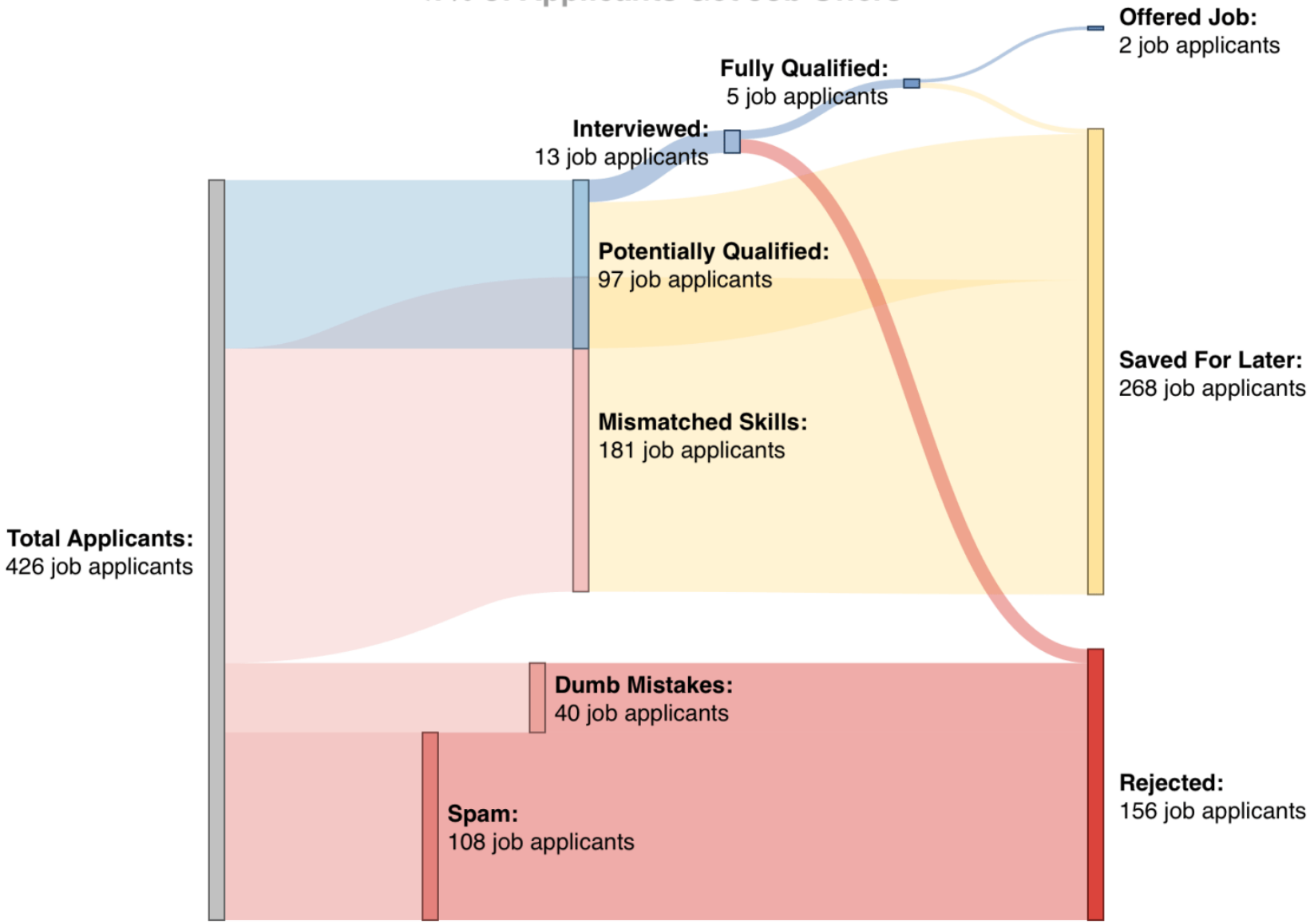


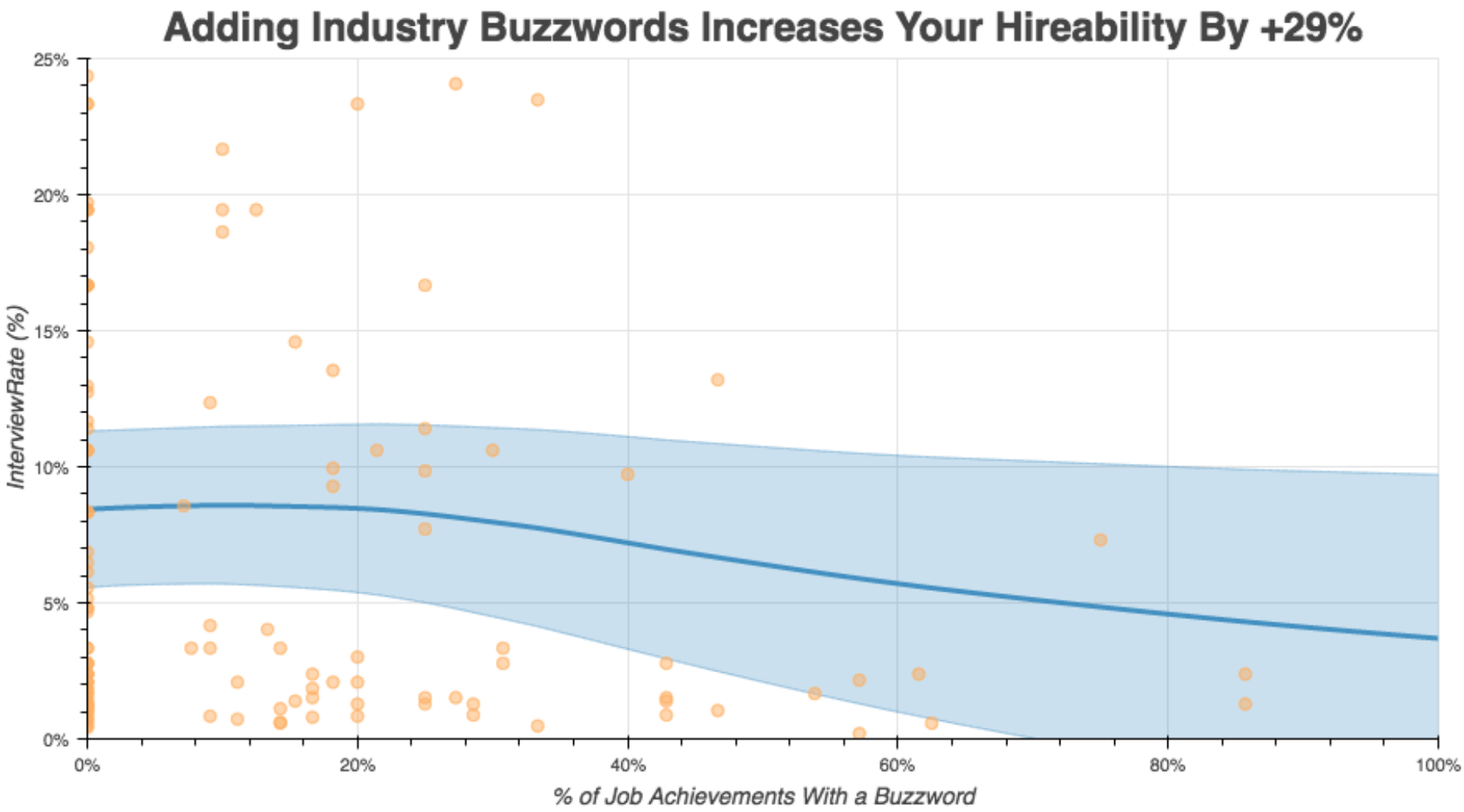
Controlling for experience, **job applicants whose resume included an objective got 20.1% to 67.1% fewer job interviews** compared to those who didn't.

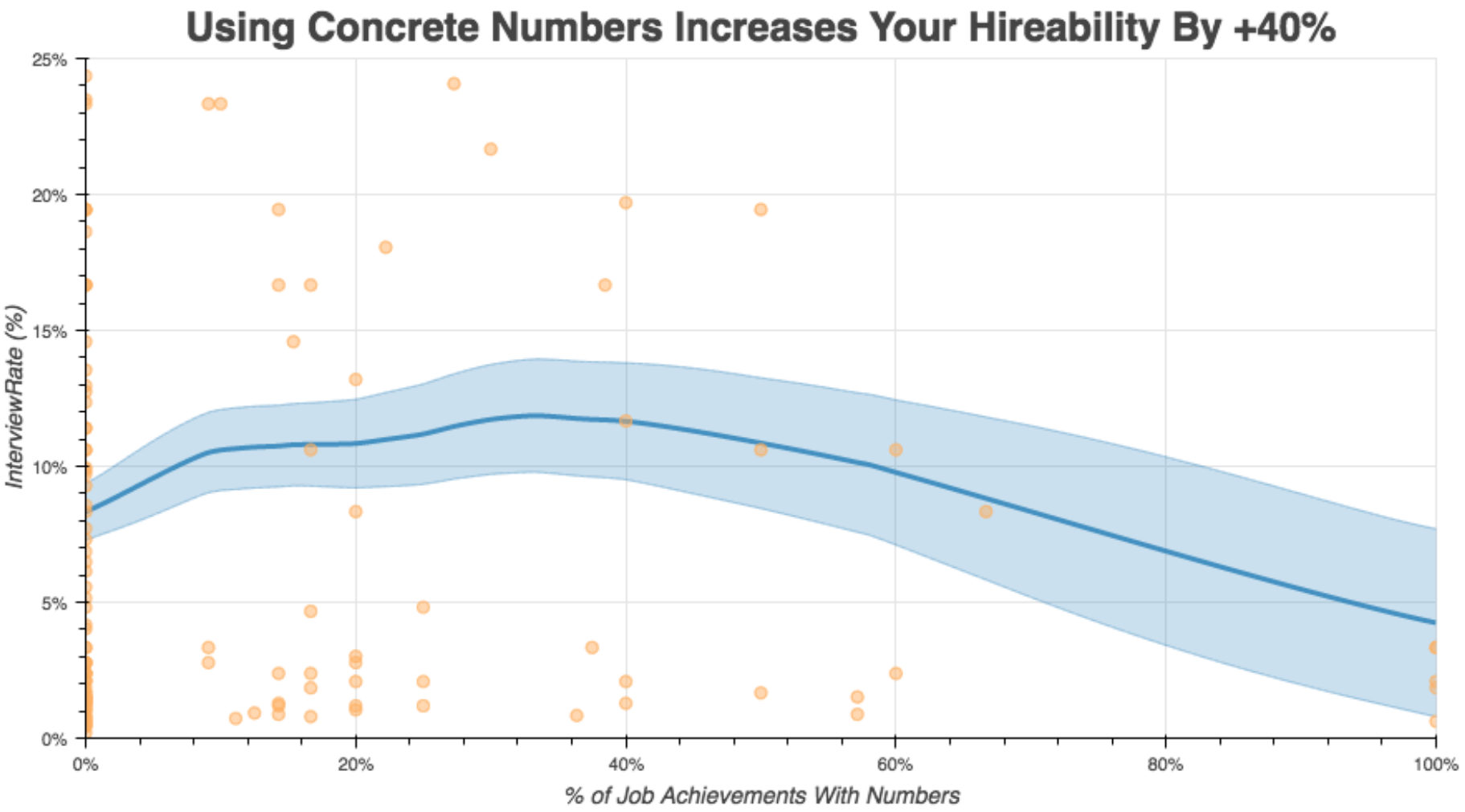


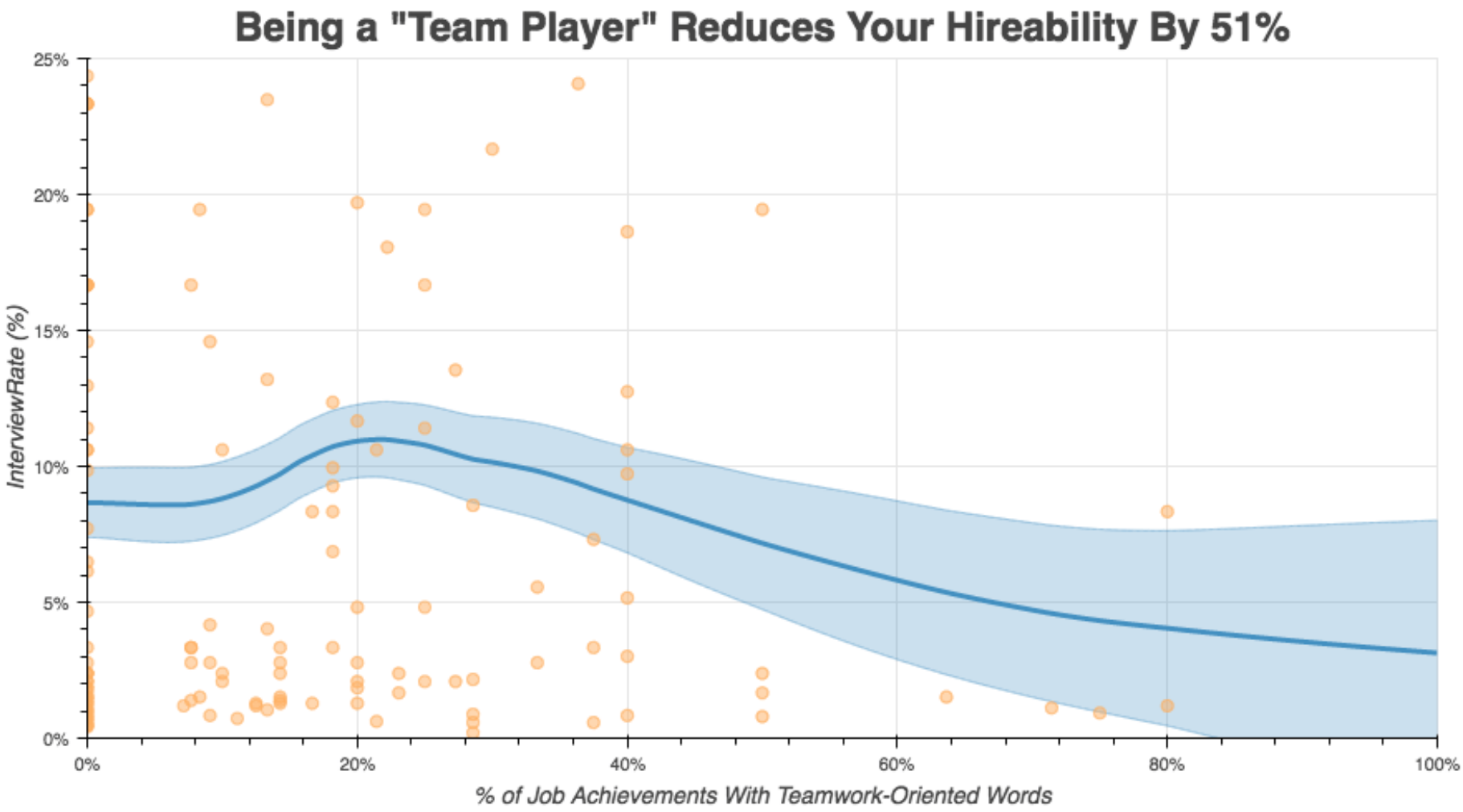
What Happens To Your Job Application?

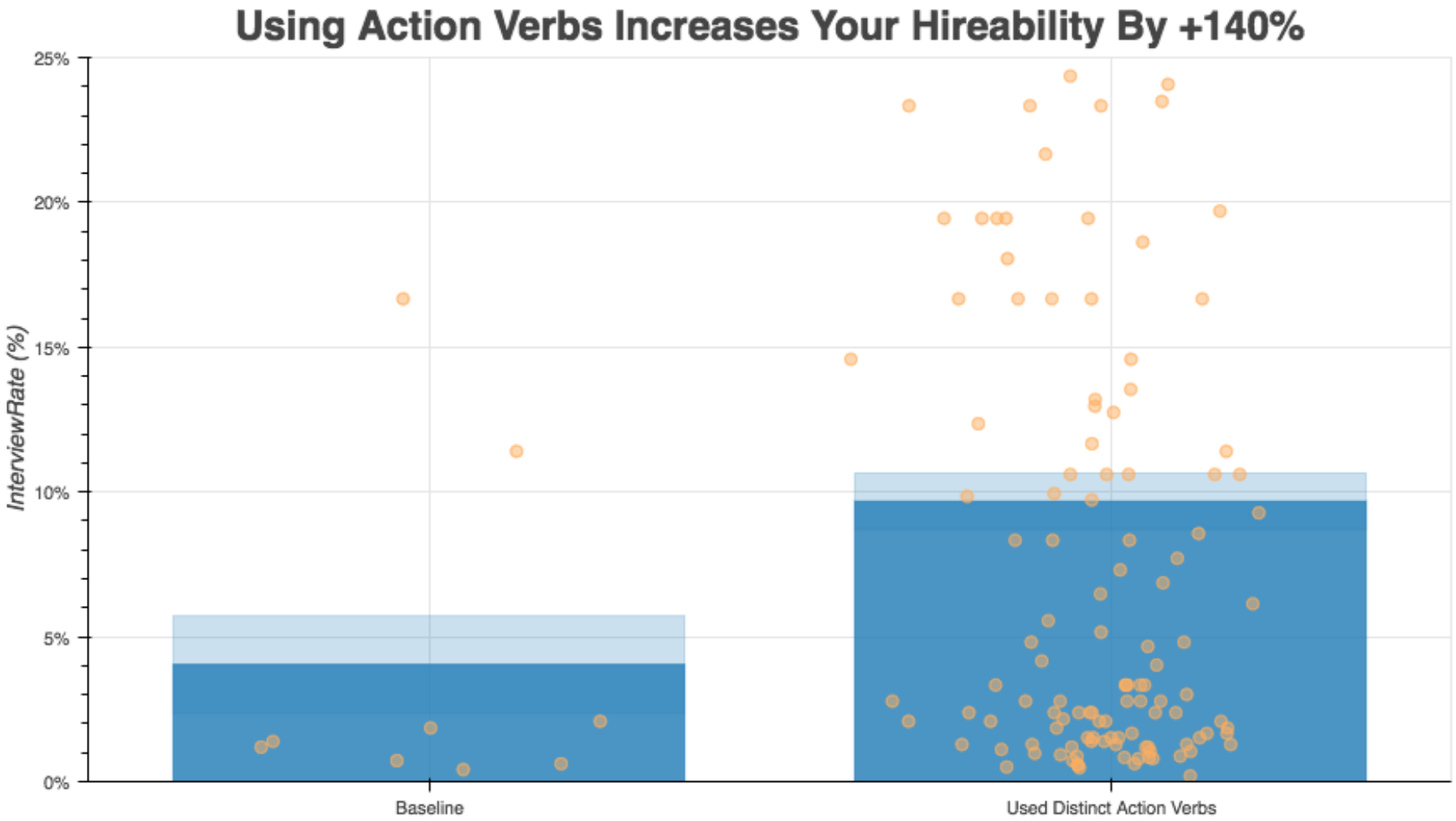
<1% of Applicants Get Job Offers











Interviews

The truth

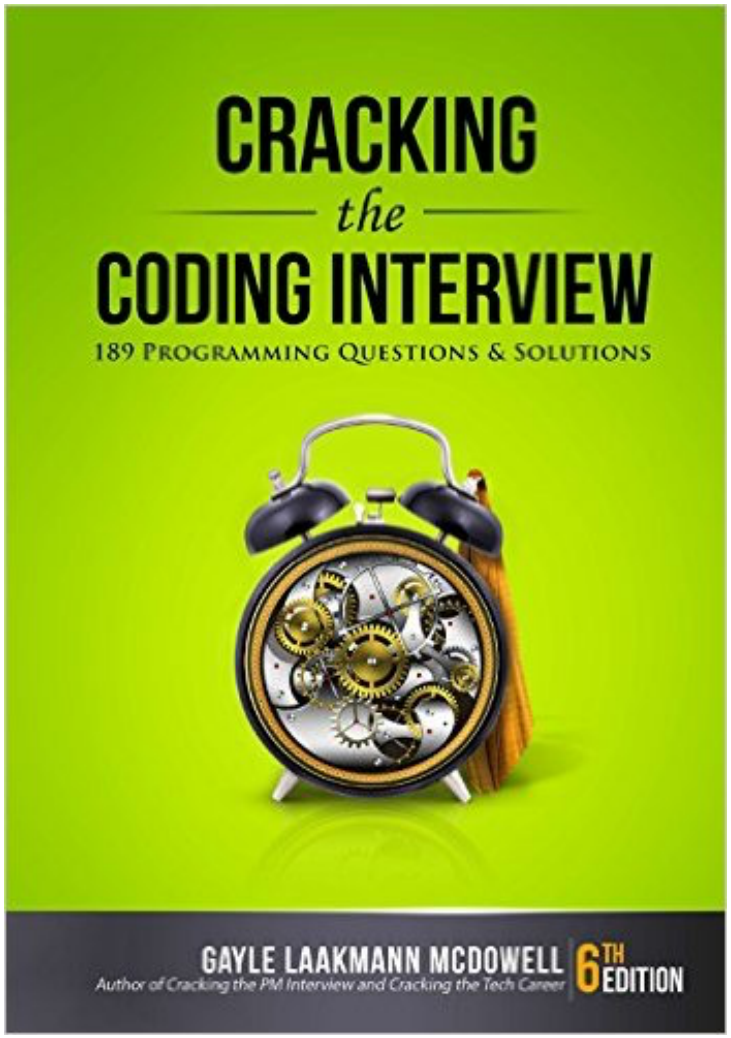
1. Tech hiring is horrible.

2. Tech hiring is 100% a game.

Dave's Record

- 2 Google Silicon Valley Interviews
  - 2 Rejections
- 1 Google New York City Interview
  - 1 Rejection
- 1 Amazon Interview
  - Job offer

Book Recommendation



40 years * $150,000/year

$35.00 investment in a
$6,000,000 career

2016 Intern Pay

Two Sigma: $10.4k/mo + $5k relo + $5k housing
Snapchat: $10k/mo + $1.5k housing
Pinterest: $9k/mo + $1k relo + $3k/mo housing or corp
Twitter: $8.4k/mo + $6k benefits
Quora: $8.3k/mo + $2k housing or corp
Facebook: $8k/mo + ~$3k benefits
Slack: $7.7k/mo
Groupon: $7.7k/mo
Palantir: $7.5k/mo + corp housing
LinkedIn: $7.5k/mo + corp housing
Twitch: $7.4k/mo + $10.5k housing or corp
Yelp: $7.3k/mo + $4.5k housing or corp
Uber: 7.3k/mo + ~$3k benefits + Uber credit (duh)
Oracle: $7.2k/mo + $7.5k housing or corp
Microsoft: 7.2k/mo + $3k housing or corp
Goldman Sachs: $7.1k/mo + $2.5k benefits
Airbnb: $7k/mo + corp housing + Airbnb credit
Stripe: $7k/mo + corp housing
Twilio: $6.9k/mo + $2k benefits
Pandora: $6.9k/mo + $3k benefits
Facebook EE/PM: $6.8k/mo + ~$3k benefits
Box: $6.7k/mo + $5k benefits
Apple: $6.7k/mo + $1k/mo housing or corp
Google: $6.6k/mo + $9k benefits
Yahoo: $6.5k/mo + $4.5k housing
Salesforce: $6.5k/mo + corp housing
Dropbox: $6.3k/mo + $5k housing or corp
Square: $6.2k/mo + $6k benefits
Amazon: $6k/mo + benefits (varies $1.5k - $7.5k)

Do your research!

- Applying to Fidelity, Goldman Sachs, etc?
  - Learn their current stock price
  - Read the past weeks Wall Street Journal to get current business news
- Learn the company
  - Current products
  - Competition
  - Latest company news
    - Investor relations

Do your research!

- Pre-select your questions
  - You will be given time to ask questions of the interviewer.
  - Cheat and have them already thought up.
    - “What’s a typical work flow from the point a new coding task has been given to a developer to deployment?”
    - “Is there a formal code review process?”
    - “Describe how you spent last Wednesday”

Things you must know

- Big O , Big omega, Big Theta
  - Time Complexity
  - Space Complexity
  - http://bigoref.com/

- Private/Protected/Public
- Virtual / Pure Virtual
- Stack v. Heap

- Recursion

- Dynamic programming
  - If you claim C/C++ you will be asked a pointer question

Things you must know

- Algorithms
  - Breadth-First Search
  - Depth-First Search
  - Binary Search
  - Merge Sort
  - Quick Sort

- Breadth-First Search comes up way more frequently than anything else
  - Mazes

- Depth-First Search
  - Word search puzzles

- Know two sorting algorithms (Merge / Quick) better than your own phone number

Things you must know

- Data Structures
  - Linked Lists
  - Trees and Graphs
  - Stacks and Queues
  - Heaps
  - Vectors
  - Hash Tables

- Hash tables are incredibly important
  - Absolutely know how to implement an array based one

Things you must know

- Powers of 2
  - Memorize a couple values and you derive the rest

Really? All that?

- We, as developers, really do have to re-load complicated undergraduate coursework into exam ready memory over, and over, and over.
  - Think it's bad now. Wait till you've been out of school for a decade.

How to Prep

- Practice, practice, practice.
  - The interview process is a game.
  - Your success does not reflect on your knowledge or abilities.
  - How well you played the game.

How to Prep

- Buy small whiteboard markers
- Buy a whiteboard
- Go to careercup.com, leetcode.com hackerrank.com
- Buy Cracking the Coding Interview
  - Pick two problems a day

How to Prep

- Code one in your strongest language.
  - No cheating
  - No stack overflow
  - No google

How to Prep

- Whiteboard
  - Use your markers and whiteboard to solve the other problem
  - Talk, a lot
    - Talk until you are tired of talking
  - Explain everything

Type of Questions

- Write a program that prints the numbers from 1 to 100. But for multiples of three print "Fizz" instead of the number and for the multiples of five print "Buzz". For numbers which are multiples of both three and five print "FizzBuzz".

Type of Questions

- Given a char* string, reverse it in place
- Develop an algorithm to determine if a string is a palindrome
- Given a word search puzzle, find how many instances of a word appear

Type of Questions

- You are given a graph, some edges are black, some are red. Find a spanning tree with one restriction: if we take some node as root, every path from it to some leaf node must consist of alternating red-black-red-black edges. That is, no path from root to leaf must contain sequential black-black edges or red-red edges.
  - Use Dijkstra's with a flag for color

Type of Questions

- How many Fibonacci numbers exists less than a given number n. Can you write a function in terms of n , to get the number of fibonacci number less than n.
  Example : n = 6
  Answer: 6 as (0, 1, 1, 2, 3, 5)

  - Do it iteratively

  - Do it recursively

Type of Questions

- Consider a setup where a program is continuously receiving floats as inputs (a stream of numbers). Write a method that at any given time returns a moving average. That is the average of the last K numbers received. If the method is called before the program has received K numbers, simply return the average of however many numbers have been received thus far.

Interview Problem Solving

- Listen
  - Pay very close attention to the problem statement
  - Ask for clarification
- Draw an example on the whiteboard
- Talk as you think through the problem
  - Making statements out loud gives insight into your thought process
  - May get a hint or two if they know where you are stuck

Interview Problem Solving

- Implement a brute force algorithm
  - State that you know it's brute force
  - State the problems with it
  - State the time and space complexity
- Optimize it
  - Think of the best run time
  - Make time vs. space trade offs
  - Can you precompute something?

Interview Problem Solving

- Walkthrough the Algorithm
  - Try edge cases
- Write your code
  - Start coding in the upper left.
  - You only have a short amount of time to show you are a great developer. Neat code counts.

STAR System

- Situation
- Task
- Action
- Results

STAR System

- “I was responsible for the network infrastructure”
- I was the lead developer on the network infrastructure team. I developed the network middleware used by 3,000 render servers. I reduced latency by 50% and delivered the software 2 months early and 15% under budget.

Remember!

- It's a game. The more you interview, i.e.. play the game, the better you will do at the game.