Increasing the probability of a successful job search: a guide

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About myself

2005	2012	2014	2016	2018	2018-?
BSEE, University of Illinois at Urbana-Champaign	PhD, Northwestern University	Post-doc, National Institute of Standards and Technology	Senior Systems Engineer, Northrop Grumman Corporation	Systems Engineer, Infinitesimal LLC and Starsight Inc.	Cost Engineer, contracted to McKinsey & Company

Motivation

You are looking for a position that:

You will be good at

+

and...

You enjoy!

+

However,

You will be good at and enjoy things that you don't even realize yet!

Lastly...

You are a smart and talented person and deserve to be compensated well - do not short yourself! We will cover salary negotiations...

Outline

1. Applications
   a. LinkedIn landing page
   b. Resume structure / formatting
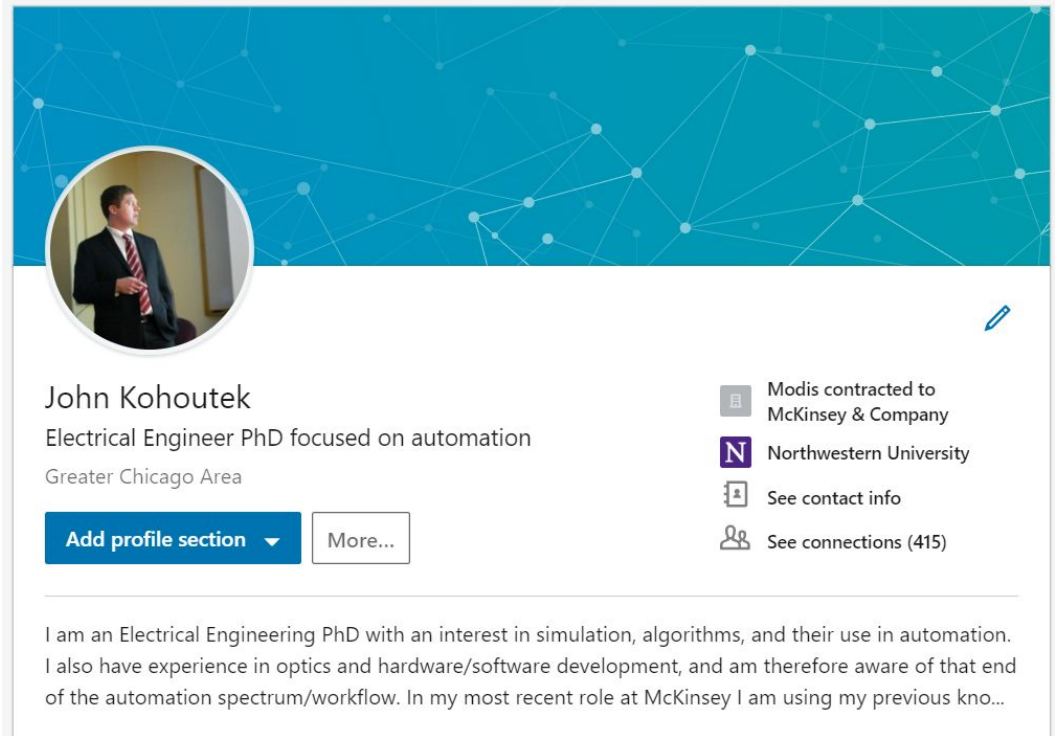   c. Cover letter
   d. Data

2. Interviews
   a. Phone screen prep
   b. Behavioral questions
   c. The onsite interview
   d. Salary negotiations

Applications

Directed LinkedIn landing page

https://www.linkedin.com/in/jackkohoutek/

Step 1:	Step 2:	Step 3:	Step 4:

For each position over the last 15 years, list three keywords of things that you did at that position that you liked.

It's OK to game this exercise slightly so that your keywords follow a theme.

Make sure that these keywords are IN the position description for each position!

Pick the top three keywords and make sure they show up in your summary at the top of your page.

Congratulations, you now have a cohesive landing page on LinkedIn for recruiters!

Example

Here is my keywords list:

Northwestern: simulation, instrumentation, automation

NIST: simulation, instrumentation, automation

Northrop Grumman: simulation, systems, algorithms

Infinitesimal: simulation, systems, software development, hardware development

Starsight: hardware development

McKinsey: hardware cost modeling, supply chain optimization, advisory consulting

Top 3 keywords / LinkedIn summary paragraph:
- Simulation
- Algorithms
- Hardware development
- Automation

I am an Electrical Engineering PhD with an interest in ==simulation, algorithms==, and their use in ==automation==. I also have experience in ==optics== and ==hardware/software development==, and am therefore aware of that end of the ==automation== spectrum/workflow. In my most recent role at McKinsey I am using my previous knowledge of this space to find added value for clients through ==cost modeling== and ==supply chain optimization==.

Job search terms

Set limits

Only look through first 5 pages of results, jobs posted within 2 weeks, don't apply to same company >2x

Job titles

List job titles you are interested in - preference to more general or broad titles

Job search and application cycle

Iterate

Cycle through the search options for steps 1-3

Job locations

List all places you are interested in having a job

Search engines

List the job search engines that you trust

Resume submission to specific job

1. Search job requisition for keywords that resonate with you and match them on resume for that individual job application
2. Before submitting a resume to a job I print out the requisition and highlight keywords that resonate with me on the requisition.
3. I then make sure that these words appear on my resume in as many places as applicable. This may involve adding the words or replacing words currently on my resume with ones found in the requisition

Example

See OSA Example 1

Job description

Electrical Engineer (Hardware)

Summary/Objective

The Electrical Engineer will be the main point of contact for all sustaining electrical engineering needs including but not limited to: Troubleshooting existing products, vendor support / migration, end of line testing, product coding, etc.

Essential Functions

- Define test requirements for electronic control software and interfacing hardware components
- Design, model, implement, and test electronic controls for various industrial equipment
- Schematic review and layout support of Printed Circuit Boards (PCBs)
- Understand firmware how to read firmware written in ANSI C/C++ for micro controllers/digital signal processors and FPGA/CPLD's – could be useful for test development
- Determine and verify the system requirements by analysis and modeling of control systems using simulation tools such as MATLAB, Spice, Altium etc....
- Work closely with mechanical and software engineers to develop robust controllers for various electro-mechanical systems/devices
- Acts as the point person for mfg test development, cycle time improvement and supplier assistance
- Research and recommend alternate components for legacy products to extend product life cycles and prevent shipment delays
- Research and understand the critical components of assemblies to estimate production life cycle and relay information to product management for analysis and product road-mapping
- Review and debug low level software and electrical designs/hardware (reading electronic schematics and PCB layouts)
- Support (technical and engineering) marketing, field service, sales and customers regarding technical information and engineering problems
- Investigate/create engineering change requests to improve product, correct errors, facilitate production, and reduce cost (RCCM – Root Cause failure analysis / Counter Measure implementation)

- Interface with <mark>Electronic Manufacturers</mark> on assembly and test of PCBA and finished units.
- Work with product development teams to ensure seamless transition of new products to production by generating work instructions and job aids based on product <mark>BOMs</mark>, drawings and manuals
- Define Harmonized tariff codes for existing and new components/products

Required Education and Experience

- Minimum B.S. in Electrical Engineering & 2+ yrs. Experience in design/manufacturing environment
- Experience in electronic hardware and system design
- Working knowledge in developing systems involving <mark>microcontroller,</mark> memory, power supply and using schematic capture and circuit simulation

Preferred Education and Experience

Previous experience working with industrial measurement systems preferred

Knowledge of advanced microcontrollers designs

Experience with electromechanical devices

Hardware and embedded development experience

Additional Eligibility Qualifications

Demonstrate good organizational skills and good follow-up techniques

Must be able to multitask

Demonstrate responsibility, respect, dependability, patience, and productivity in order to create a positive work environment

Ability to take analysis to diagnosis to implementation

Problem solver with excellent technical ability

Supervisory Responsibility

None

Work Environment

Exposure to manufacturing environment. Noise level may vary from moderate office environment to noisy/loud in the plant area. Proper use of safety equipment such as steel-toed shoes, goggles, safety glasses, gloves, apron and face shield must be observed.

John M. Kohoutek, Ph.D.

Chicago   (783) 217-9283   Jack.kohoutek@gmail.com

EDUCATION

Ph.D. in Electrical Engineering   Sep '07–Aug '12 Evanston, IL
Northwestern University EECS, Solid State & Photonics

Graduate Coursework and Research Experience   Aug '05–Aug '06 Philadelphia, PA
University of Pennsylvania, Bioengineering

B.S. in Electrical Engineering   Aug '01–May '05 Champaign, IL
University of Illinois at Urbana-Champaign

EXPERIENCE

Lab Engineer   May '18–Present Chicago, IL
Modis contracted to McKinsey & Company
- Perform product teardown and cost modeling for client electrical assemblies
- Deliver to client "should-cost" of product using BOMs so they can negotiate with electronic manufacturers and optimize their supply chain
- Carry out design-to-value (DTV) by researching and recommending alternate components while advising clients on saving cost and increasing margins without sacrificing performance or customer experience

Systems Engineer and Principal Investigator   Mar '17–April '18 Evanston, IL
Starsight, Inc.
- Designed, modeled, implemented, and tested hardware, software, and embedded firmware of 3D time-of-flight depth vision camera using innovative semiconductor modulator
- Miniaturized PCB analog/digital circuits and designed semiconductor modulator using MATLAB simulation

Systems Integration Engineer   Apr '16–Present   Skokie, IL
Infinitesimal, LLC
- Used waterfall method to design and implement PCB, embedded hardware, firmware, software GUI, and algorithms for single-cell transfection device prototype and commercial system
- Awarded provisional patent for automatic cell contact detection algorithm

Senior EO/IR Modeling and Simulation Engineer   Dec '14–Mar '16 Rolling Meadows, IL
Northrop Grumman Corporation
- Awarded trade secret for missile counter measure system algorithm on aircraft flight computer
- Conducted integration and test activities on infrared search-and-track (IRST) pod for F-15E
- Developed requirements based on customer input for cockpit display interface of pod

Post-doctoral Research Associate   Sep '12–Nov '14 Gaithersburg, MD
National Institute of Standards and Technology
- Used FEA/FDTD modeling for simulation of MEMS and nanophotonic devices
- Used Labview to configure and interface with multiple instruments simultaneously for experimental automation and data collection
- Utilized interferometry and lock-in methods for measuring radiation pressure on MEMS devices

SKILLS

Laboratory automation and system integration:
> Microcontrollers, GPIB, UART/Serial, SPI, electrical lab equipment (oscilloscope, waveform generator, spectrum analyzer, etc.), PCB design/layout (analog/digital), optical/electrical design and characterization, lasers (QCLs, semiconductor lasers, Ti:Saph, gas lasers), interferometry, prototyping and debugging, basic CAD

Analysis, algorithms, and software development:
> PCB schematic/layout software (EAGLE), MATLAB, C/C++, Labview, Mathematica, .Net framework, Scripting (e.g., bash), version control (e.g., Mercurial and Tortoise)

Simulation packages:
> LTspice, COMSOL Multiphysics, Lumerical FDTD

PATENTS AND IP AWARDS

J. Kohoutek, J. Prinz, H. Espinosa, "Electroporation system with micromanipulator and probe", provisional patent 62,454,399, 2017.

J. Kohoutek, J. Prinz, V. Lemaitre, "Infinitesimal NFP-E System", New Product Award, Society for Laboratory Automation and Screening, 2017.

J. Kohoutek, et. al., "A reusable Keep Out Zone algorithm to protect from friendly fire", Trade Secret Award, Northrop Grumman Rolling Meadows, 2016.

SELECTED PUBLICATIONS

J. Kohoutek, et. al, "Threat processing: important algorithms for missile tracking, recognition, and defeat," *ES Technical Journal*, May 2016.

J. Kohoutek, R.M. Gelfand, and H. Mohseni, "Integrated plasmonic antennas with active optical devices," in *The Wonders of Nanotechnology: Quantum Optoelectronic Devices and Applications*, M. Razeghi, L. Esaki, and K. von Klitzing, Eds. Bellingham, WA: SPIE, 2013, pp. 739–764. (invited)

J. Kohoutek, A. Bonakdar, R.M. Gelfand, D. Dey, I. Hassani, V. Fathipour, O.G. Memis, and H. Mohseni, "Integrated all-optical infrared switchable plasmonic quantum cascade laser," *Nano Letters*, vol. 12, no. 5, May, pp. 2537–2541, 2012.

J. Kohoutek, D. Dey, A. Bonakdar, R.M. Gelfand, A. Sklar, O.G. Memis, and H. Mohseni, "Opto-mechanical force mapping of deep subwavelength plasmonic modes," *Nano Letters*, vol. 11, no. 8, Aug., pp. 3378–3382, 2011.

PROFESSIONAL ACTIVITIES

OSA Optical Biosensors Technical Group Industrial Relations Liaison   '18–Present
SPIE (Society of Photographic Instrumentation Engineers) journal reviewer   '12–Present
OSA (Optical Society of America), member and reviewer   '   '11–Present

Resume structure & tips

- Split academic projects or long term employment at one place into many different "work experiences" or "projects"
- Emphasize work experience (for industry)
- Do not emphasize publications, but list a max of three (for industry)
- 2 pages max for industry resume
- No "references" mentions - do not name references or even that you can get them if needed
- No physical address

Resume formatting

- Direct, easy to read, only 1 font throughout, sans serif
- Margins exist for a reason
- Remove mailing address, keep city
- Education, work experience, skills, publications, extra, in that order
- Nothing they don't care about (musical instruments, etc)
- 3-ish bullet points for each position/project
- If you have summary, don't fill it with useless jargon

Example

See OSA Example 2

Name, U.S. Permanent Resident (Green card holder)

Cell phone: 123-454-4444 **Email**: abc@gmail.com **Address**:1234 Chicago St., Chicago IL 60622

SUMMARY

- Expert in the design, fabrication, and modeling optical systems and semiconductor optoelectronic devices.
- Self-driven, team player, leader, and communicator driving collaborations with >30 researchers.

SKILL HIGHLIGHTS

- **Software**: ZEMAX, SolidWorks, LABVIEW, MATLAB, COMSOL, Orcad, LUMERICAL (FDTD), HFSS, C#, DipTrace (PCB layout), MS Office.

- **5 Years of Cleanroom Experience**: PECVD, RIE, Wet etching, Photolithography, Ellipsometry, Rapid thermal annealing, Sputtering, E-beam evaporation, Anodization, Wire bonding, Polishing, Focused ion beam milling.

- **Hardware**: SEM, Lock-in amplifier, Piezoelectric controller, Optical and electrical spectrum analyzer, Laser amplifier EDFA, Fiber optics, 3D printing. Machining, Fiber splicing, Femtosecond laser. Laser alignment.

SELECTED AWARDS & HONORS

- 2015 SPIE education scholarship award
- 2014 SPIE best paper award.
- 2010 Generic fellowship, Northwestern University.

EDUCATION & RESEARCH HIGHLIGHTS

Northwestern University, **Postdoctoral fellow**   **Sep 2016 – present**

Realization of single photon III-V semiconductor photo detectors.

- Measured and analyzed the performance of the photodetectors and matched them against the theory.
- Made the optical assembly of a LIDAR system comprising the highly sensitive photodetectors.

Realization of the first gigahertz eye safe 3d imager.

- Designed and tested a GHz infrared modulator with the modulation depth of 50% with 0.5 mW of consumed power.
- Made the optical setups for the 3D imaging system.

Northwestern University, Ph.D , GPA=3.979/4   **Jan 2010– Sep 2016**

Realization of solid, compact and vibration free laser coolers to enhance the microelectronic components.

- **Design and Modeling:**
    - Coded MATLAB scripts for modeling the band-structure, absorption, and PL of III-V quantum wells (QWs).
    - Designed suspended micro-structures and simulated their thermal and mechanical properties using COMSOL.

- **Fabrication:**
    - Fabricated ultrafine single-mode ridge waveguides for sub-bandgap (1550 nm) excitations of III-V semiconductors.
    - Fabricated nano-suspended QWs accurately using common fabrication tools to detect weak thermal powers (~nW).

- **Measurement Setups and Instrumentation:**
    - Built customized microscopes for alignment of multiple lasers of different wavelengths to single-mode waveguides.
    - Fabricated thermometers with the accuracy of 1 mK and sub-nano watt accuracy of the measured thermal power.
    - Built a setup with an integrating sphere for testing the emission efficiency of LEDs and optical refrigerators.
    - Made a micro time-resolved photoluminescence setup with the temporal resolution of 1 nano second.

University in Another Country, MSc in Electronics, GPA=3.48/4   Sep 2006– Sep 2009

- Design and simulated carbon nanotube field effect transistors with significantly improved I_{on}/I_{off} ratio.

University in Another Country, BSc in Telecommunication Engineering, GPA=3.87/4   Sep 2002– Sep 2006

WORK EXPERIENCE

Internship in Academic Startup Company, Evanston, IL   April– August 2015

- Created wearable smart clothing with embedded FBG sensors for measuring patients' feet temperature and pressure. The speed of this sensor is at least <u>10 times higher than</u> the commonly used capacitive sensors.

- Created a LabVIEW interface software for the end-users to communicate with the smart socks.

PATENT

1- xxx.

SELECTED PUBLICATIONS (4 OUT OF 35)

1- **Name**, et al "Title" Scientific Reports, x, xxxxx, (2017).
2- **Name**, et al "Title" Journal of Luminescence xxx, xxx-xxx (2016).
3- Name1**, Name2**, et al. "Title." IEEE Photonics Journal x, x-x (2016).
4- **Name** and Advisor, "Title", ECS Solid State Letters, x (x) Pxx-Pxx (2013).

LEADERSHIP & PROFESSIONAL ACTIVITIES

- Session chair of the SPIE Optics and Photonics Conference (San Diego 20xx)
- Executive chair of local SPIE Chapter (2014-2016).
- Lectured a B.Sc. course, Engineering Analysis 1, to about 200 B.Sc. students at Northwestern University.

EXTRACURRICULAR ACTIVITIES

- **Sports:** Tennis, running, biking and chess.
- **Music:** Playing Guitar and keyboard. I am also a member of Northwestern University music academy chorus.

Name

U.S. Permanent Resident (Green card holder)
Cell phone: 123-345-5444   **Email**: abc@gmail.com

EDUCATION

Northwestern University, Evanston, IL   Jan 2010 – Sep 2016
    Ph.D in Electrical Engineering

University in Another Country   Sep 2006 – Sep 2009
    MSc in Electronics

University in Another Country   Sep 2002 – Sep 2006
    BSc in Telecommunication Engineering

EXPERIENCE

Postdoctoral fellow, **Northwestern University, Evanston, IL**   Sep 2016 – present
Realization of single photon III-V semiconductor photo detectors
- Measured and analyzed the performance of the photodetectors and matched them versus theory
- Constructed optical assembly of a LIDAR system comprising highly sensitive photodetectors

Realization of the first gigahertz eye safe 3d imager
- Designed and tested a GHz infrared modulator with the modulation depth of 50% with 0.5 mW of consumed power
- Completed optical metrology setup for characterizing prototype 3D depth imaging system

Realization of solid, compact and vibration free laser coolers
- Designed quantum well devices using MATLAB script
- Fabricated laser cooling devices using suspended micro structures

Graduate Research Assistant, Northwestern University, Evanston, IL   Sep 2016 – present
Design and modeling of quantum micro structures
- Used MATLAB for modeling the band-structure, absorption, and photoluminescence of III-V quantum wells
- Performed opto-mechanical simulation of suspended micro-structures, including both thermal and mechanical properties, using COMSOL.

Fabrication of ridge waveguides and suspended quantum wells
- Fabricated ultrafine single-mode ridge waveguides for sub-bandgap (1550 nm) excitations of III-V semiconductors
- Fabricated suspended accurately using common fabrication tools to detect weak thermal powers (~nW)
- Design of experiments to measure suspended quantum well properties and optical characteristics

Automation and instrumentation
- Built customized microscopes for optical measurement and alignment of multiple lasers of different wavelengths to single-mode waveguides
- Fabricated thermometers with the accuracy of 1 mK and sub-nano watt accuracy of the measured thermal power
- Controlled several instruments including integrating sphere and measurement backend for testing the emission efficiency of LEDs and optical refrigerators
- Characterized optical time-resolved photoluminescence setup with the temporal resolution of 1 nanosecond

Optical Engineer Intern, Academic Startup Company, Evanston, IL   April – August 2015
- Created wearable "smart" apparel with embedded fiber Bragg grating sensors for measuring patients' foot temperature/pressure at high speed
- Created a LabVIEW interface for end-users to communicate with the smart footwear

SKILLS

Image processing, algorithms, and simulation: ZEMAX, SolidWorks, LABVIEW, MATLAB, COMSOL, Orcad, Lumerical (FDTD), HFSS, C#, DipTrace (PCB layout)

Cleanroom (5 years experience): PECVD, RIE, Wet etching, Photolithography, Ellipsometry, Rapid thermal annealing, Sputtering, E-beam evaporation, Anodization, Wire bonding, Polishing, Focused ion beam milling.

Hardware: SEM, Lock-in amplifier, Piezoelectric controller, Optical and electrical spectrum analyzer, Laser amplifier EDFA, Fiber optics, 3D printing, Machining, Fiber splicing, Femtosecond laser, Laser alignment.

SELECTED PUBLICATIONS AND PATENTS

Patent with correct citation

Name, et al. "Title" Scientific Reports, x, xxxxx, (2017).

Name, et al. "Title" Journal of Luminescence xxx, xxx-xxx (2016).

Name1**, Name**, et al. "Title." IEEE Photonics Journal x, xx-xx (2016).

Name and Advisor, "Title", ECS Solid State Letters, x (x) Pxx-Pxx (2013).

SELECTED AWARDS AND HONORS

2015 SPIE education scholarship award
2014 National Science Foundation (NSF) travel grant award
2014 SPIE best paper award
2010 Generic fellowship, Northwestern University

LEADERSHIP

Session chair of the SPIE Optics and Photonics Conference (San Diego 2017)
Executive chair of the SPIE organization at Northwestern University (2014-2016)
Lectured a B.Sc. course, Engineering Analysis 1, to about 200 B.Sc. students at Northwestern University
Member of Northwestern University music academy chorus

Cover letter basics

- More general summary of your career path
- Matching keywords modified for each position
- Concise, well written - have someone else proofread. It's always good to get other points of view

Cover letter basics

See OSA Example 3

Dear Hiring Manager:

I am writing to express my interest in the ==Electrical Engineer (Hardware)== position. I have a background in ==electrical engineering== with extensive experience in ==troubleshooting, testing, and product coding==, which would be a great asset to both this position and the organization.

I graduated from the University of Illinois at Urbana-Champaign with a B.S. in ==Electrical Engineering==. From there I got my Ph.D. at Northwestern, where I became an expert in ==printed circuit boards (PCB)== and ==electronic controls==. I did my post-doctoral work at the National Institute of Standards and Technology where I furthered my skills in ==microcontrollers and firmware==. In 2012 I started working as a Senior Systems Engineer at Northrop Grumman Corporation. At Northrop I worked on algorithms for an aircraft flight computer ==using MATLAB== and on ==debugging== activities for an underwing aircraft ==counter measure== pod. Since Northrop I have been working for two startup companies on different aspects of product engineering – ==software, electrical==, ==hardware==, and algorithms. At Starsight, I developed a 3D camera prototype in a short amount of time.

I would welcome the opportunity to discuss this position further. I can be reached at (783) 217-9283 or jack.kohoutek@gmail.com. Thank you for your consideration of my application, and I look forward to hearing from you.

Sincerely,
John Kohoutek, Ph.D.

Application tracking

- Start a spreadsheet with the below headers as a minimum
- It should be easy to fill out as you go along
- Using the strategy from slide 9 with this slide to vary the job titles and locations you are applying for - "Cast a wide net"

Date	Company	Title	Location	Requisition	Call Back (Y/N)

A note on application rate

- I tried to stay active in my applications every day
- Some days I would apply to 1-2 jobs
- Other days I would apply to 5 to 8 jobs
- If I applied to an average of 3.5 jobs a day 5 days a week, it would take me 4 weeks to apply to 70 jobs
- In that time I got 14 callbacks, 5 on-site interviews, and 2 offers

Requisition / resume repository

- Keep an online repository of pasted job requisitions and submitted resumes
    - Job requisitions get taken down
    - You lose the resume you applied for that position with
- I suggest Google Docs or Dropbox
- Just paste the text of the requisition and the resume

Interviewing

Phone screen preparation

1. Print out physical copies of 2 things:
   a. Job requisition
   b. The resume you submitted to that requisition
      The recruiter will have both in front of them
2. Circle things on resume that relate to job requisition at each position
   a. The desired experience & job responsibilities sections
3. HR will ask you to go over resume or something similar ("Tell me about yourself")
4. The circled points are the ones you want to remember to say during that question
5. Think of relevant examples for each position, write them down, be ready to talk about them if asked
   a. This is also the best way to prepare for the "resume deep-dive"

See OSA Example 1

Behavioral questions: STAR

1. Think of 2-3 situations that happened at work and mold it to fit the question that comes up
   a. (conflict with boss, didn't complete project, etc, see below):
      https://www.thebalancecareers.com/behavioral-job-interview-questions-2059620
   b. Answer using STAR method:
      Situation - This is the background (how long ago you were hired, coming off of X project, team makeup, etc.)
      Task - This is the job you were given (design X, pick X equipment, etc)
      Action - *What you did to solve the problem*
      Result - What happened, and what happened AFTERWARD (only positive results)

2. You can modify one of your examples you can prepared with to fit the question
   a. The **S**ituation, **T**ask, and **R**esult most likely stay the same - the **A**ction and explanation will change

Example

"Explain a time when you had a conflict with your boss at work." **VS** "Give an example of a goal you didn't meet and how you handled it."

S - I had recently started at academic startup company. CEO was very set in his ways and took a long time to make decisions. He liked the current software interface of our product but I knew it needed an overhaul.

T - CEO told me to look at the legacy system and see what parts we should use going forward.

A - I evaluated the system and took 6 months to redesign the hardware and software, despite the CEO preferring the old system.

R - The system was much better from a UX and CX point of view, and the hardware redesign saved space and cost. The CEO accepted it, but kept using the pictures of the old interface in his presentations to VCs. Although I met my goal of improving the company's product, I did not meet my goal of doing it with the everyone's buy-in. The new design was a hit with our internal testers and external beta-testers and that gave everyone confidence moving forward.

Behavioral questions: Stress questions

- These come in the form of asking **technical knowledge questions** until the interviewee doesn't know the answer.
- A response of "I don't know" may be followed by something like, "What do you THINK the answer is?" which is frustrating because you just told them you don't know
- In the case that you do not know, or you tell them you don't know and they respond as above, answer with the below guidance:
  - Do not get angry and stab back
  - Do not back down and give up
- Amazon and Apple use this technique (personal experience), among others.
- https://collegegrad.com/blog/how-to-answer-when-you-dont-know-the-answer

Behavioral questions: Stress questions

1. Tell them what you do know
2. Ask questions
3. Think out loud
4. Write out your thought process
5. Tell them how you **would** find the answer
6. Sell nothing.
   a. This can be a test of your ability to "sell nothing" which is a measure of how creative you are under pressure
   b. So be creative! If you feel like you have to make up BS to answer the question, feel free.
   c. Feel free to qualify your answer with, "I told you I didn't know, but…"

Example (these are real examples)

How would you use an algorithm to find the distance between a point and a line?

How I answered: Tell them you don't need an algorithm, it can be solved geometrically. **Interviewer:** But how would you use the algorithm? **Me:** I wouldn't use an algorithm, the answer is obvious from geometry. **Interviewer:** But if you did use an algorithm, what would you do? **Me:** (Gets angry)

Draw an emitter follower circuit.

How I answered: (Doesn't know) I don't know, but I know how to draw a voltage follower with an op-amp. (Draws circuit) **Interviewer:** Can you draw a BJT? **Me:** (Draws BJT) **Interviewer:** What is the base, emitter, collector? **Me:** (Labels it) **Interviewer:** How does a BJT work? **Me:** (explains but gets stumped at current-controlled)

Draw a differential amplifier.

How I answered: (Doesn't know) Like this? Draws op-amp.
How I should have answered: (Doesn't know) Well, I don't know, but if I had to make it myself, I would start by doing this. **1.** Draw op-amp. **2.** State rules for op amp. **3.** I know how a summer works, so I might start with something like that. **4.** For a summer I would need a negative voltage or resistance or current. **5.** Maybe I can place a ground to draw current in the other direction?

On-site interview preparation

- Study the company. They may not ask you about it directly, but you will be much more comfortable in conversation during the interview
- For the same reason, study the product line.
- Rerun the side-by-side exercise with the requisition and your resume, however,
  - **Go into deep detail on your resume side.**
  - **Study in detail examples of your previous work that are relevant!** They will ask about it and you will be ready!

What to bring

1. Folio with notebook inside
2. Copies of resume
3. Pen
4. Copy of job description to study in between rounds (study it between rounds!)
5. Do NOT bring a computer! It seems common that you will need to give a presentation for an academic interview but it's rare at a real company. Bring your notebook and resume.

Note taking

- During conversations, keep some short notes. Write things down that…
  - Didn't make complete sense
  - You would like to know more about
  - Were unexpected for you to hear
- When they ask if you have any questions, ASK a couple of questions about the things you wrote down (2-3 max)

Asking questions can give you information about the culture

- What do people do for lunch around here? (gauge culture)
- How long have you worked here? (gauge turnover)
- What is a typical day like? (gauge hours)

- How many meetings do you have in a typical week? (gauge time spent getting stuff done vs. talking)
- How deep is the project pipeline? (gauge how well company is doing and how long role can last)
- How much time to the owners/leaders/C-suite spend in the office? (gauge how much leadership is invested)

- **Do NOT ask yes/no questions.**
- **Give a long pause and they will keep talking.**
- **Don't just listen for their answer to the question, listen to what they say AFTER they answer the question.**

Use a data-based salary negotiation

1. Compare current comp to glassdoor median for your position (across companies)
2. Select higher value
3. "You would like to go up from there"
4. Don't use a range. This just gives them freedom to choose the lower number. **They will do it every time.**
5. If you say a number that is way too high for them and they deny you based on that - you don't want to work there anyway.
   a. More often what happens is they will come back to you, saying they can not hit that, but here is what they can hit
6. Express excitement at working there!

- When a prospective employee is interviewing with a company, and they say they will take a relatively low salary, it diminishes the employee! It tells the company that the employee either doesn't value themselves or that they are desperate.
- As a woman or minority don't be afraid to ask for what you are worth - companies appreciate confidence and it will make them think more highly of you

Closing / questions

jack.kohoutek@gmail.com