## Thoughts on Finding Your Way

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BOISE STATE UNIVERSITY



| ca·ree   | r              |                |                              |  |  |  |  |
|--|----------------|----------------|------------------------------|--|--|--|--|
| Origin   |                |                |                              |  |  |  |  |
| LATIN  | ITALIAN        | FRENCH         |                              |  |  |  |  |
| carrus<br>wheeled<br>vehicle   |                |                | → career<br>mid 16th century |  |  |  |  |
| mid 16th century (denoting a road or racecourse): from French <i>carrière</i> , from Italian <i>carriera</i> , based on Latin <i>carrus</i> 'wheeled vehicle.' |                |                |                              |  |  |  |  |
| т  | ranslations, v | word origin, a | and more definitions         |  |  |  |  |

"[I]t's worth recognizing that there is no such thing as an overnight success. You will do well to cultivate the resources in yourself that bring you happiness outside of success or failure. The truth is, most of us discover where we are headed when we arrive. At that time, we turn around and say, yes, this is obviously where I was going all along. It's a good idea to try to enjoy the scenery on the detours, because you'll probably take a few." -Bill Watterson







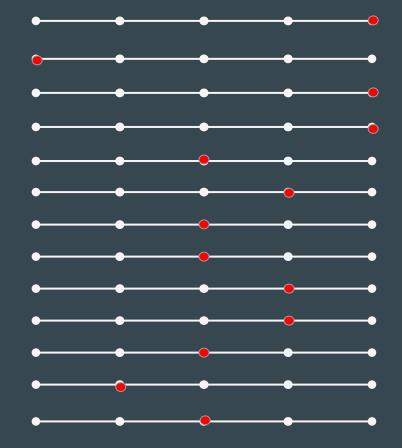
# When you wake up in the morning, you look forward to engaging in your **day-to-day** work.

#### Making Decisions: What is important to you?

- Autonomy?
- Well-defined projects?
- Quiet thinking time?
- Learning new things?
- Individual / Team work?
- Teaching and mentoring?
- Theory? Practical products?
- Open source software?
- Location? Culture? Cuisine?
- Family?
- Recreation?
- Institutional Name Recognition?
- Pay? Cost of living? Advance opps?

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#### Industry or Academia? Academia positives

- Teaching
- Mentoring
- Research
- Colleagues
- My own office (with a door that can lock and a whiteboard)
- Shower
- http://www.pgbovine.net
- Industry to Academia: <u>http://matt-welsh.blogspot.de</u>

#### 'merican 'cademics: general information

#### • Salary is for 9 months

- You can of course spread that out over the 12 months
- You can fill in "summer salary" with grants
- Summers are great (3+ months without teaching requirements)
- Computer science departments are hiring
  - Partly because industry keeps taking established professors in various fields
- Setting up a research group takes a lot of time
- Getting your first grant can take a lot of time (and luck?)
- Institutional Review Board (IRB)
- Tenure

#### Academia: Negatives

- Grant Proposals (differs depending on your country)
- Meetings ("service")
- "In academia, half of your time is dedicated to teaching, half to research, and half to departmental service." -David Schlangen
- Oh, the academia vs. industry question! I decided a couple years ago that I didn't want to stay in academia. For one, I don't enjoy teaching or mentoring. Also, publishing drives me nuts not writing papers, which I'm totally happy to do, but just the ways that publishing as a primary goal drives and impacts research in negative ways... quantity over quality, overly complex approaches that look nice on paper, solving of non-problems, etc. (I think this is worse in robotics than other fields because robots are further away from real applications.) Also, I really like and value engineering, so it's sad to me when all my systems are sloppily thrown together because engineering effort isn't core to the research problem so it can't be justified. So it's hard to imagine I could ever achieve lifelong fulfillment through the professor route. The grass is always greener, but overall I felt disillusioned enough that I was ready to take the one-way trip to the other side.

#### Life post-PhD: What should I do now to prepare?

- Keep track of potential places where you might want to work and network
  - Industry: Google, Apple, Amazon, Microsoft, Nuance, HRI, Interactions, etc.
  - Academia: Edinburgh, Heriot-Watt, KTH, Gothenburg, Amsterdam, USC, Saarland, etc.
- Option 1: find openings and send your CV everywhere
- Option 2: find exactly what you want and work for it
  - $\circ$  I tried this for Boise State and it worked (warning: survivorship bias)
- Practice writing (more on this later)
- Publish papers, do an internship (if possible)
- Publish (readable, usable) code on GitHub
- Organize yourself (Trello, Asana, others)
- Besides ML and DL: learn enterprise web dev (Heroku, AWS, etc.)

## Writing (your dissertation)

- (3? 6?) Months before writing: start an outline
  - Always update and edit the outline
  - Have your advisor give feedback
- Read a lot.
  - $\circ$  I dug into philosophy a lot.
  - "Reading those turgid philosophers here in these remote stone buildings may not get you a job, but if those books have forced you to ask yourself questions about what makes life truthful, purposeful, meaningful, and redeeming, you have the Swiss Army Knife of mental tools, and it's going to come in handy all the time." -Bill Watterson
- When in doubt, write, then edit
- Write a chapter draft, let sit and return to it later

|                             | uction   |  |  |  |  |  |
|-----------------------------|--|--|--|--|--|--|
|                             | (with ample examples)  |  |  |  |  |  |
|                             | The Problem: Resolving Defin   |  |  |  |  |  |
|                             | The Setting: Situated Dialogue   |  |  |  |  |  |
| 0                           | Motivation   |  |  |  |  |  |
|                             | face-to-face conversation is basic and primary (Filmore)   |  |  |  |  |  |
|                             |  | <ul> <li>definite descriptions are common in langauge (Poesio &amp; Vieira)</li> </ul>             |  |  |  |  |
|                             | interactive dialogue is a good place to look at reference     kow hanging full, perceptually important |  |  |  |  |  |
|                             |  |  | age by means of reference, pointing,   |  |  |  |
|                             | interactive dialogi  |  |  |  |  |  |
| 0                           | Aims of Thesis   | <ul> <li>all up the problem in a probabilistic transacrit</li> </ul>                               |  |  |  |  |
|                             | <ul> <li>model resolution</li> <li>representing the workd vs. experienting the language</li> </ul>     |  |  |  |  |  |
|                             | <ul> <li>fit the model into</li> </ul>   | <ul> <li>Backgound incernental Spoken D alogue Systems</li> <li>Spoken dialogue systems</li> </ul> |  |  |  |  |
|                             | <ul> <li>implement and ev</li> </ul>   | <ul> <li>Imprement and ex</li> </ul>   |  |  |  |  |
| <ul> <li>Outline</li> </ul> |  |  | interaction in situated dialogue   |  |  |  |
|                             | round  |  |  |  |  |  |
|                             | Background: NPs and Re   | 3  | <ul> <li>U can be words, regards, wereintic rep. (RMRS, DyrS yr)</li> </ul>  |  |  |  |
|                             | <ul> <li>Reference and N</li> </ul>  | - Assumption   | <ul> <li>unfied protouna, del desc, debia simple</li> </ul>  |  |  |  |
|                             | <ul> <li>Mill, Frege</li> </ul>  | <ul> <li>for</li> </ul>  | <ul> <li>abortominar?</li> </ul>   |  |  |  |
|                             | <ul> <li>Saussure</li> </ul>   | · don  | <ul> <li>B has to come from somewhere</li> </ul>   |  |  |  |
|                             | <ul> <li>Strawson:</li> </ul>  |  |  |  |  |  |
|                             | use an ex  | <ul> <li>only</li> </ul>   | <ul> <li>Can only handle intersective conspection</li> </ul>   |  |  |  |
|                             | <ul> <li>Kripke - si</li> <li>Donnellan</li> </ul>   | <ul> <li>obje</li> </ul>   | <ul> <li>A little wask when it comes to uncertainty in the world</li> </ul>  |  |  |  |
|                             | <ul> <li>Kaplan (d)</li> </ul>   | <ul> <li>right</li> </ul>  |  |  |  |  |
|                             | Nunberg (  | <ul> <li>only</li> <li>Ctas</li> </ul>   | <ul> <li>A more robust discriminative approach: WACm</li> </ul>  |  |  |  |
|                             | <ul> <li>Austinian</li> </ul>  | · Gris   | <ol> <li>more robust to roise W</li> </ol>   |  |  |  |
|                             | <ul> <li>Camap (p)</li> </ul>  | · City   | <ul> <li>can handle more complex relations that use lands area.</li> </ul>   |  |  |  |
|                             | <ul> <li>We want t</li> </ul>  | <ul> <li>ent</li> </ul>  | <ul> <li>projects only ecremented by words</li> </ul>  |  |  |  |
|                             | <ul> <li>Meaning [</li> </ul>  |  | where does this fit in the world of semantics?   |  |  |  |
|                             | De re rea:   | <ul> <li>What have other p.</li> </ul>   |  |  |  |  |
|                             |  | <ul> <li>how does t</li> </ul>   | Condusing Remarks  |  |  |  |
|                             | <ul> <li>Not conce</li> <li>intension</li> </ul>   | <ul> <li>anothey gri</li> <li>anothey include</li> </ul>   | <ul> <li>Lowerse puts the symbolic and networks logither, larguage stauture gives us a lot</li> </ul>                          |  |  |  |
|                             | <ul> <li>characteri</li> </ul>   | <ul> <li>NU?</li> </ul>  | <ul> <li>Indementations of the two models?</li> </ul>  |  |  |  |
|                             | <ul> <li>logical ser</li> </ul>  | o NLG?   |  |  |  |  |
|                             | <ul> <li>extension</li> </ul>  | <ul> <li>Ref ret in 1</li> </ul>   | <ul> <li>how are dSI UM and SIUM complementary?</li> </ul>   |  |  |  |
|                             | <ul> <li>NPs which</li> </ul>  | <ul> <li>Incremental</li> </ul>  | Outline  |  |  |  |
|                             | <ul> <li>NPs we are interc</li> </ul>  | <ul> <li>Ref res with</li> </ul>   | <ul> <li>indefinite descriptions</li> </ul>  |  |  |  |
|                             | <ul> <li>descriptive</li> </ul>  |  | <ul> <li>quantities</li> </ul>   |  |  |  |
|                             |  | Data     Pento   | <ul> <li>phraientties</li> </ul>   |  |  |  |
|                             | <ul> <li>task: x.rex</li> <li>for red</li> </ul>   | <ul> <li>oid)</li> </ul>   | <ul> <li>adatract ertifies</li> </ul>  |  |  |  |
|                             | Background: Grounding  | · take   |  |  |  |  |
|                             | <ul> <li>perception and th</li> </ul>  | . 128.4  |  |  |  |  |
|                             | <ul> <li>Harnad: the symt</li> </ul>   | <ul> <li>REX tange</li> </ul>  | NOTES  |  |  |  |
|                             | Luc Steels: social   | ATLS   |  |  |  |  |
|                             | "representation" c   | <ul> <li>Looking at 1</li> </ul>   | <ul> <li>resolving efferring expensions are sensible question "where is the object?"</li> </ul>                                |  |  |  |
|                             | <ul> <li>Deb Roy</li> </ul>  | + SUIM Apeneety  | <ul> <li>we are concerned with interaion and extension</li> </ul>  |  |  |  |
|                             | <ul> <li>handling speech</li> </ul>  | <ul> <li>The U fair</li> </ul>   | <ul> <li>we don't refer to truth values, we sand to resolve the entity to a red-world object.</li> </ul>                       |  |  |  |
|                             | <ul> <li>how does gaze &amp;</li> </ul>  | <ul> <li>Get</li> </ul>  |  |  |  |  |
|                             |  | <ul> <li>medied i.i</li> </ul>   | <ul> <li>we are internated in REs (in that they effer) and not full uits ( sentences or popositions (which may not)</li> </ul> |  |  |  |
|                             |  | <ul> <li>how does a</li> </ul>   | <ul> <li>This cross is red" vs: "This red cross."</li> </ul>   |  |  |  |
|                             |  | <ul> <li>ML2</li> </ul>  | <ul> <li>Where might there be points of coniliation (e.g., in terminology?).</li> </ul>  |  |  |  |
|                             |  | <ul> <li>can hande</li> </ul>  | <ul> <li>foliay you?</li> </ul>  |  |  |  |
|                             |  | <ul> <li>can take co</li> <li>obset to hi</li> </ul>   |  |  |  |  |
|                             |  | bated on E   |  |  |  |  |
|                             |  | anhande  | Abstract about a page  |  |  |  |
|                             |  | incremental  | Inter: At least 10 papers  |  |  |  |
|                             |  |  | Combaion 20 page   |  |  |  |
|                             |  |  | Main Content (from intro to condusion indusi sel); about 200 pages   |  |  |  |
|                             |  |  | and a second                 |  |  |  |
|                             |  |  |  |  |  |  |
|                             |  |  |  |  |  |  |

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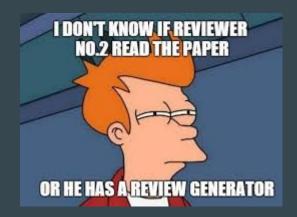
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#### **Dealing with Failures and Setbacks**

- Paper rejects
- Problems with your code, lab
- Advisor unhappy with you
- Grant reject
- Dissertation writer's block
- Health issues
- Family issues
- Imposter syndrome

Go on a walk and think through your existential crisis.

Talk to people. You'll find everyone has failures and setbacks.



#### **Parting Thoughts**

- You're human, so find an outlet to get your mind off of the crazy stuff.
  - $\circ$  I run and cycle.
  - Even if you love what you do (which I do), you need to the a regular breath of fresh air
- To invent your own life's meaning is not easy, but it's still allowed, and I think you'll be happier for the trouble. -Bill Watterson
- You probably have many goals, but even if you don't quite reach your goals, the effort yields its own rewards.

#### Done.



BOISE STATE UNIVERSITY



#### 'merican 'cademics: My experience

- The department hired 8 new faculty members in 2016
  - Faculty from U.S., China, Russia, Iran, Argentina, Romania, Italy, India
- Focus was on AI, HCI, NLP, ML, DS, IR, RS, and other acronyms
- New interdisciplinary PhD in Computing program
- Courses I've been involved in creating:
  - Foundations of Data Science (CS 133) which targets non-CS students
  - Natural Language Processing (CS [4|5]36)
  - Introduction to Data Science (CS 533)
  - Deep Learning (CS 633)
- Setting up a research group (SLIM):
  - http://web.mit.edu/tslvr/www/lessons\_two\_years.html
  - $\circ$  ~ Compete for good talent with industry
  - $\circ$  ~ Students can be a mazing and they can be flaky