# Faculty Job Search Impressions

Baris Kasikci

ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

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# Advisory

~~Advisory~~

Informatory

# Where to get advice from?

- Good news: There are plenty of sources for advice
  - Philip Guo http://www.pgbovine.net/guo-faculty-job-search.pdf
  - Mike Ernst http://homes.cs.washington.edu/~mernst/advice/academic-job.html
  - Matt Might http://matt.might.net/articles/advice-for-academic-job-hunt/
  - John Regehr http://www.cs.utah.edu/~regehr/jobsearch/
  - Jeannette Wing http://www.cs.cmu.edu/~emigration/interview.pdf
  - Matt Welsh http://matt-welsh.blogspot.com/2012/12/how-to-getfaculty-job-part-1.html
- Bad news: you have to read all of it!

# Quick Numbers

- 45 applications (2 MSR + 1 VMware Research)
- 19 interview invitations, turned down 3 of them
- 16 interviews, 300 1-on-1s
- 10 offers, 3 rejections, 3 polite declines

# Summary of Results

Microsoft® Research

Researcher
Cambridge lab (1 year)


Assistant Professor

# Outline

- Preparation
- Application
- Interview
- Negotiation

} Sole purpose is to get the interview

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# Preparation (1)

- Build a strong track record
  - PhD from a top program
  - Papers in top conferences/journals (2-3 first author)
  - Fellowships
  - Awards (best paper, best talk, etc.)
  - Internships
- Rally strong allies (letters, advice, guidance)
  - Advisor, faculty (internal/external), collaborators
- Teach some (if possible)

# Preparation (2)

- Build up a good image
  - Be knowledgeable (attention to detail)
  - Have a simple and informative webpage
  - Build a strong social network
    - Facebook, twitter, blog, mingling

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# Application Materials

- Reference letters
- Research statement
- Teaching statement
- CV
- Cover letter
- Reaching out to personal contacts
- Diversity Statement (a new thing)

**Decreasing importance**

```
/Users/kasikci/dslab-repo/Baris.Kasikci/applications$ ls
BUECE           Colorado        GATechECE       MichiganCSE     Stanford        UCSBCS          UTAustinECE     research
Berkeley        ColumbiaCS      HarvardCS       Princeton       StonyBrookCS    UIUCCS          WashingtonCS    strings.txt
CMUCS           CornellCSIthaca ITU             PurdueCS        Toronto         UIUCECE         WaterlooCS      teaching
CMUECE          CornellCSNYC    MIT             RiceECE         UBCCE           UMass           WisconsinCS     text
CalTech         CornellECE      MSR             RochesterCS     UBCCS           UPenn           Yale
CambridgeCS     ETHCS           MaxPlanck       SantaCruzCS     UCLASC          USCCS           cover-letter
ChicagoCS       GATechCS        Miami           SimonFraser     UCLCS           UTAustinCS      references
/Users/kasikci/dslab-repo/Baris.Kasikci/applications$
```

# Reference Letters (1)

- Very, very, very important
- Need to come from well-known and respected professors and researchers (majority needs to come from professors)
- Help your letter writers (a lot)
  - Need to have your CV and statements ready for them
  - Prepare a summary of your achievements
  - Ask writers well in advance of application deadlines (1.5-2 months)

# Reference Letters (2)

Reference Letter Request  Inbox x

**Baris Kasikci** <baris.kasikci@epfl.ch>  11/1/15

to Babak

Dear Babak,

I am writing to ask you whether you would be willing to write for me a strong recommendation letter for my upcoming academic job applications.

As a quick reminder, I have mainly worked on building techniques to improve the reliability and security of software systems, with an emphasis on concurrent software. I built tools to detect [SOSP'13], classify [ASPLOS'12, TOPLAS'15], and diagnose the root causes of bugs [HotOS'13, HotOS'15, SOSP'15]. I have also worked on techniques for efficiently monitoring end user executions [USENIX ATC'14]. More details on my work are here: http://www.bariskasikci.org/ .

I will mostly apply to US-based positions for which the application deadlines are between Nov 15th to Jan 15th. Should you agree write a letter for me, I will send you my application materials (teaching and research statements), more information about my accomplishments, and any other material you might request.

Regardless, I would be glad if you can give your input on my application materials and any other advice regarding the academic job hunt. I realize that your schedule is packed to the brim, yet if you can spare some time for a chat regarding academic jobs, I'd really appreciate it.

...

- Letter writers need to know your work well

George Candea's Letters

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| | A | B | C |
|---|---|---|---|
| 10 | Washington CS | 12/16/2015 | |
| 11 | Waterloo CS | 12/16/2015 | |
| 12 | UIUC CS | 12/10/2015 | |
| 13 | UPenn CIS | 12/10/2015 | |
| 14 | CMU CS | 12/8/2015 | |
| 15 | Columbia CS | 12/8/2015 | |
| 16 | Harvard CS | 12/8/2015 | |
| 17 | Michigan CS | 12/8/2015 | |
| 18 | MSR (not a faculy application) | 12/8/2015 | |
| 19 | UC Santa Cruz CS | 12/8/2015 | |
| 20 | UCL CS | 12/8/2015 | To be sent *directly* by the reference writer to Lisa Howard (lisa.howard@ucl.ac.uk) at the time of your application. Applicant ID: 355759 |
| 21 | UCLA CS | 12/8/2015 | |
| 22 | UCSB CS | 12/8/2015 | |
| 23 | University of Chicago | 12/8/2015 | |
| 24 | University of Rochester | 12/8/2015 | |
| 25 | USC CS | 12/8/2015 | |
| 26 | UTAustin CS | 12/8/2015 | |
| 27 | VMware (researcher application) | 12/8/2015 | To be sent directly to Matthew Wendorf: mwendorf@vmware.com |
| 28 | Wisconsin CS | 12/8/2015 | |
| 29 | BU ECE (ajo) | 12/5/2015 | |
| 30 | Academic Jobs Online (ajo) | 11/28/2015 | |
| 31 | Berkeley EECS | 11/28/2015 | https://willow.coe.berkeley.edu/PHP/facrec/menu.php?dept=eecs&search=2005 |
| 32 | Caltech Computing and Mathematical Sciences | 11/28/2015 | https://applications.caltech.edu/reference/144855204115556146 04 |
| 33 | CMU ECE | 11/28/2015 | |
| 34 | Cornell CS Ithaca (ajo) | 11/28/2015 | |
| 35 | Cornell CS NYC (ajo) | 11/28/2015 | |
| 36 | Cornell ECE (ajo) | 11/28/2015 | |
| 37 | GATech CS (ajo) | 11/28/2015 | |
| 38 | GATech ECE (ajo) | 11/28/2015 | |
| 39 | MIT EECS | 11/28/2015 | https://eecs-search.eecs.mit.edu/letters/ |
| 40 | Princeton CS | 11/28/2015 | |
| 41 | Purdue CS | 11/28/2015 | |

- Systematically track letters
- Make it easy for the writers
  - Links, status, etc
- Keep track of deadlines and send reminders

# Research Statement

http://www.bariskasikci.org/public/research-statement.pdf

- Need to show **vision** (the most important thing)
- Need to reiterate that you did **impactful** research
- Need to lay out **short term** and **long term** research goals
    - Demonstrate that you are able to pursue your future research goals

**I don’t think it makes sense to tailor the research statement**

# Teaching Statement

http://www.bariskasikci.org/public/teaching-statement.pdf

- Not as important as the research statement, but you need it

- Talk about teaching experience
- Talk about mentoring experience

→ **Give concrete examples and results**

- Talk about future teaching plans

**I think it makes sense to tailor the teaching statement, I didn't do it because it is time consuming**

# CV

www.bariskasikci.org/public/cv.pdf

- Emphasize awards and fellowships
- Don’t focus on grades
- Describe projects in a concise manner
- Focus on aspects relevant to academia
    - Talks and mentorship experience is important
    - Specific programming skills are not that important

# Cover Letter

- Not very important, but you generally need it
- Tailor the cover letter
- Mention the position and explain briefly why you are a good fit

# Reaching Out To Personal Contacts: Heads-up Emails

- Ask your “allies” to write friendly emails to their personal contacts at places you applied for a position
- To make sure your application is not lost in a pile

Heads-up Emails

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bariskasikci@gmail.com

Comments Share

| | Institution | Baris' contacts | George's contacts | | Babak's contacts | Notes |
|---|---|---|---|---|---|---|
| | | | *Contact* | *Status* | | |
| | Caltech | | | | | |
| | Colorado CS | | | | Dirk Grunwald | Phone interview |
| | Columbia CS | Junfeng Yang | | | Simha Sethumadhavan | |
| | Cornell CS Ithaca | | Gun Sirer | Emailed Gün on 16-Dec | Ken Birman | |
| | Cornell ECE | | | | David Albonesi | |
| | Cornell Tech (NYC) | | Ari Juels | Emailed Ari on 16-Dec | Dan Huttenlocher | |
| | GATech ECE | | | | Sudhakar Yalamanchili, Moinuddin K. Qureshi, Marilyn Wolf | Invited to on-site interview |
| | George Tech CS | | Calton Pu | Emailed Calton on 16-Dec | Milos Prvulovic | |
| | Harvard CS | Eddie Kohler | | | David Brooks | |
| | Michigan CS | Jason Flinn, Peter Chen | | | | |
| | MIT | | | | Arvind | |
| | MSR (Researcher) | Madan Musuvathi, Dushyanth Narayanan | | | | |
| | Princeton | | Mike Freedman | Emailed Kai Li on 16-Dec (Mike is on leave) | Kai Li | |
| | Purdue CS | | | | Ananth Grama, Antony Hosking, Ahmed K. Elmagarmid | |
| | Purdue ECE | | Saurabh Bagchi | Emailed Saurabh on 16-Dec | Charlie Hu, Rudolf Eigenmann, T. N. Vijaykumar | |
| | Simon Fraser | | | | Arrvindh Shriraman | No need to email, interview scheduled |
| | Stanford CS | | | | Kunle Olukotun | |
| | Toronto CS | Ashvin Goel | Bianca Schroeder | Emailed Bianca on 16-Dec | Renée J. Miller, Kyros Kutulakos | |
| | UBC CS | | Andy Warfield | | Alan Hu | |
| | UBC ECE | Sasha Fedorova | | Ed apparently already sent him an email | Tor Aamodt | |
| | UC Berkeley CS | | Ion Stoica | Emailed Ion on 16-Dec | Krste Asanovic, Randy Katz | |
| | UCL CS | Brad Karp | | | | |
| | UMass CS | Emery Berger | | | | |
| | University of Chicago CS | Shan Lu | | | | |
| | UPenn CIS | | Andreas Haeberlen | Emailed Andreas on 16-Dec | Insup Lee | |
| | VMware (Researcher) | Curt Colovson | | | | |
| | Yale CS | | | | | |
| | UCSB CS | | Ben Zhao | Emailed Ben on 16-Dec | Tim Sherwood | |
| | Max Planck | | Peter Druschel, Rupak Majumdar | emailed Peter and Rupak on 16-Dec | | |
| | Washington CS | Luis Ceze | Hank Levy | | Mark Oskin | |
| | UT Austin CS | | Lorenzo Alvisi, Emett Witchell | emailed Emmett and Lorenzo on 16-Dec | Keshav Pingali, Calvin Lin | |
| | UT Austin ECE | | | | Mattan Erez | Not hiring in systems |
| | UCLA CS | | | | Jason Cong | |
| | Rochester CS | John Criswell | Michael Scott | Emailed Michael on 16-Dec | Michael Scott | |

| | H | I |
|---|---|---|
| | Legend: | |
| | | No email sent |
| | | Higher priority to send email |
| | | Email sent |

# Outline


- Preparation
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} The most important part of the process

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## Baris Kasikci - UBC Interview Schedule

**Week of:** February 1

| | February 1<br>MONDAY | | February 2<br>TUESDAY | |
|---|---|---|---|---|
| 8:30 AM | **Breakfast**<br>Kaiser 5505 | 8:30 AM | **Breakfast**<br>Kaiser 5505 | Cyril Leung |
| 9:00 AM | Cyril Leung, Sathish Gopalakrishnan | 9:00 AM | Alireza Nojeh | Sathish Gopalakrishnan |
| 9:30 AM | **Guy Lemieux (30 minutes)**<br>Kaiser 4016 | 9:30 AM | **Farshid Agharebparst (30 minutes)**<br>Kaiser 3047 | Guy Lemieux |
| 10:00 AM | **Ivan Beschastnikh (45 minutes)**<br>ICICS/CS 327 | 10:00 AM | **Marc Parlange** (Dean), **Elizabeth Croft** (Assoc. Dean)<br>Kaiser 5000 | Ivan Beschastnikh |
| 10:45 AM | **Break + Talk Preparation** | 10:30 AM | **Mieszko Lis (30 minutes)**<br>Kaiser 4040 | Tor Aamodt |
| 11:00 AM | **Research Talk (11:00 - 12:15)**<br>Kaiser 2020 | 11:00 AM | **Meeting with Work-Life-Relocation Expert** | Karthik Pattabiraman |
| 11:30 AM | | 11:30 AM | | Sasha Fedorova |
| 12:15 PM | **Lunch with Graduate Students (12:15 - 1:30)**<br>Kaiser 5505<br>Several graduate students | 12:00 PM | **Lunch with Faculty Members (12:00 - 1:30)**<br>Perch Restaurant<br>At Lunch: Lutz Lampe, Sid Fels, Sathish Gopalakrishnan | Ali Mesbah |
| 12:30 PM | | 12:30 PM | | Ron Garcia |
| 1:00 PM | | 1:00 PM | | Ali Mesbah |
| 1:30 PM | **Tor Aamodt (45 minutes)**<br>Kaiser 4043 | 1:30 PM | **Sathish Gopalakrishnan (30 minutes)**<br>**Exit Interview (Recruiting Committee Chair)** | Konrad Walus |
| 2:15 PM | **Karthik Pattabiraman (45 minutes)**<br>Kaiser 4048 | 2:00 PM | **Andre Ivanov (30 minutes)**<br>**Exit Interview (Department Head)** | Matei Ripeanu |
| 3:00 PM | **Break (15 minutes)** | 2:30 PM | **Free Time To Explore Vancouver** | Alireza Nojeh |
| 3:15 PM | **Sasha Fedorova (45 minutes)**<br>Kaiser 4113 | 3:00 PM | | Farshid Agharebparst |
| 4:00 PM | **Ali Mesbah (45 minutes)**<br>Kaiser 4044 | 3:30 PM | | Mieszko Lis |
| 4:45 PM | **Break (15 minutes)** | 4:00 PM | | Lutz Lampe |
| 5:00 PM | **Ron Garcia (30 minutes)**<br>ICICS/CS 387 | 4:30 PM | | Sid Fels |
| 5:30 PM | **Dinner (including travel time)** | 5:00 PM | | Andre Ivanov |
| 5:30 PM | Nuba in Kitsilano<br>Reservation at 6:00 p.m. for 5 people in the name of "Sathish" | 5:30 PM | | |
| 6:00 PM | 3116 West Broadway | 6:00 PM | | |
| 6:30 PM | At dinner: Ali Mesbah, Konrad Walus, Matei Ripeanu | 6:30 PM | | |

- You will be handed out a schedule

- Better tools & runtime to help understand code.

- IoT
  - Security: PWN any computer you want
    - ↳ systems grow in complexity
    - ↳ no way to develop stuff from scratch
    - ↳ used to be isolated → now can access a lot of resources

- Shared computing: things will become more unified.
  - How do you define abstraction?
  - Do you need an OS for the cloud?

→ you don't own these devices
- ↳ Ownership of "things" (email, pictures, you don't really have a "choice").

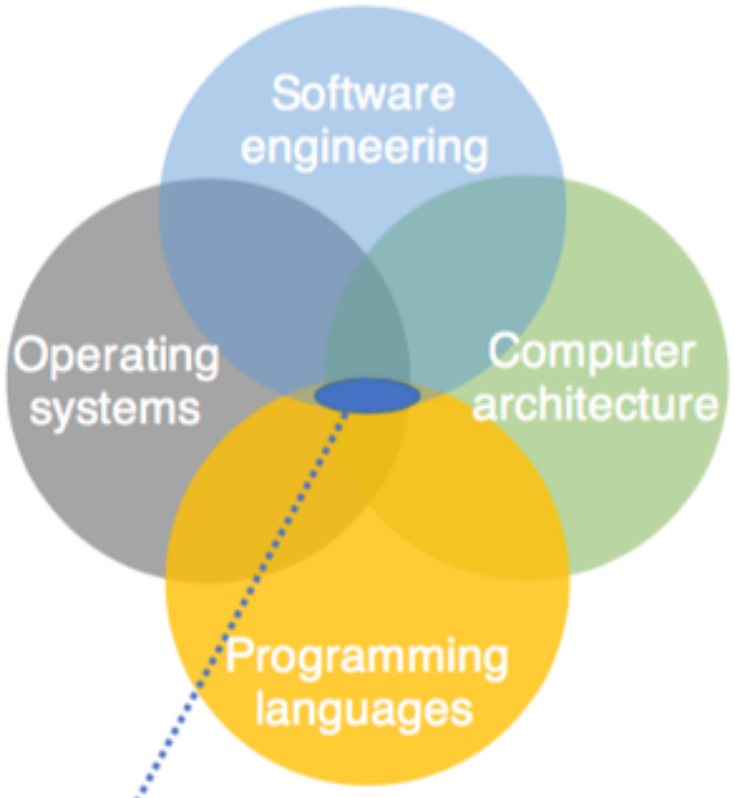
- Democratization of SW development
  - ↳ wrapping high-level commands to .impl.
  - ↳ can you asdor a system to modify itself
  - ↳ PL aspect (bigmage support)
  - ↳ Systems aspect.

- Different computation models
  - ↳ ML, neural nets, Quantum computing.
  - ↳ as we understand brain better, we'll mimic it more.

(TensorFlow)

(Next billion users)
- Jigsaw,


Stamping Out Concurrency Bugs
Baris Kasikci
EPFL
LAUSANNE




**My approach**

Mixed static-dynamic analysis
Low-overhead
High accuracy
Using commodity hardware

Baris Kasikci, baris.kasikci@epfl.ch

**Future work**

Heterogeneous computing systems and IoT

Privacy (users' data)

Security (path profiling)

Concurrency in large-scale distributed systems

Detection
[ *SOSP'13* ]
[ Wodet'14 ]
[ *HotDep'12* ]

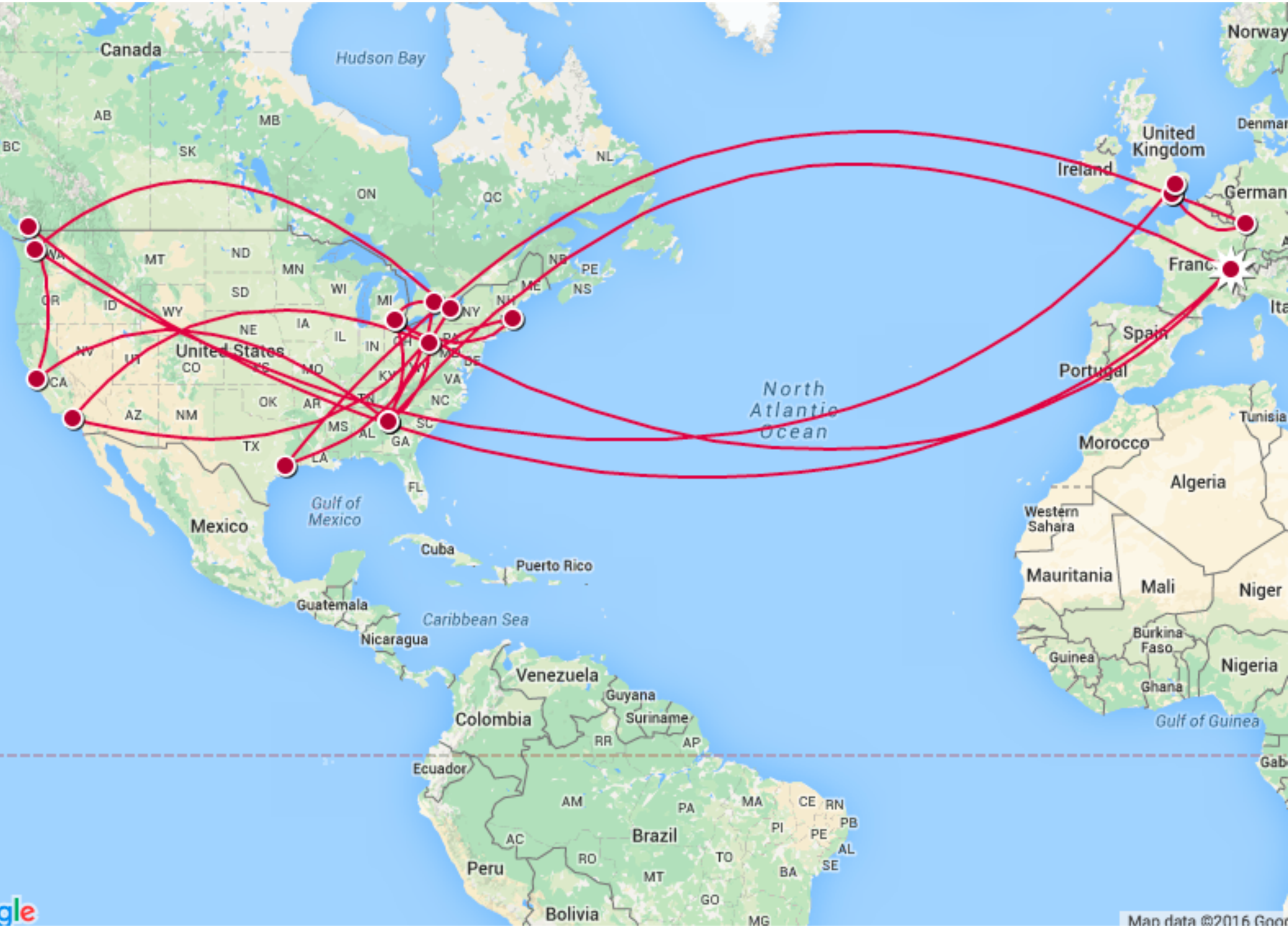
Root Cause Diagnosis
[ *SOSP'15* ]
[ *HotOS'15* ]
[ *HotOS'13* ]

Classification
[ *ASPLOS'12* ]
[ *TOPLAS'15* ]

Efficient Runtime Monitoring
[ *Usenix ATC'14* ]

# Challenges: Interviews

- Physical
  - 56 flights in the past 4 months
  - Hard to not get sick
- Mental
  - Requires enormous preparation effort
  - Loneliness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FL
United States
Gulf of Mexico
Mexico
Cuba
Puerto Rico
Guatemala
Caribbean Sea
Nicaragua
Venezuela
Guyana
Suriname
Colombia
RR
AP
Ecuador
AM
PA
MA
CE
RN
PB
PI
PE
AL
SE
AC
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BA
MT
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Peru
Brazil
Bolivia
MG
North Atlantic Ocean
United Kingdom
Ireland
Norway
Spain
Portugal
Morocco
Algeria
Tunisia
Western Sahara
Mauritania
Mali
Niger
Burkina Faso
Guinea
Ghana
Nigeria
Gulf of Guinea


Viva Labs
Vitamin C
1000 mg
250 Vegetarian Capsules
Dietary Supplement
Purell
ADVANCED
AVANCE
Super Orange
1,000 mg Vitamin C
DIETARY SUPPLEMENT
MORE FREE
100% MORE
NATURE'S BOUNTY
Melatonin
1mg
Clinically Studied Ingredient
180
Supradyn
all day
Advil
LIQUI-GELS
Rennie
ÇİĞNEME TABLETİ
ANTİASİT
48 Tablet
Xozal
Film-coated tablets
30 film-coated tablets
ucb


schwarz
noir - nero

# Continuous Grind

- Asked for a schedule a week in advance
- Went through everyone's web pages
  - Recent and top papers
  - Gathered inside knowledge
- Prepared a summary of research interests

# CMU

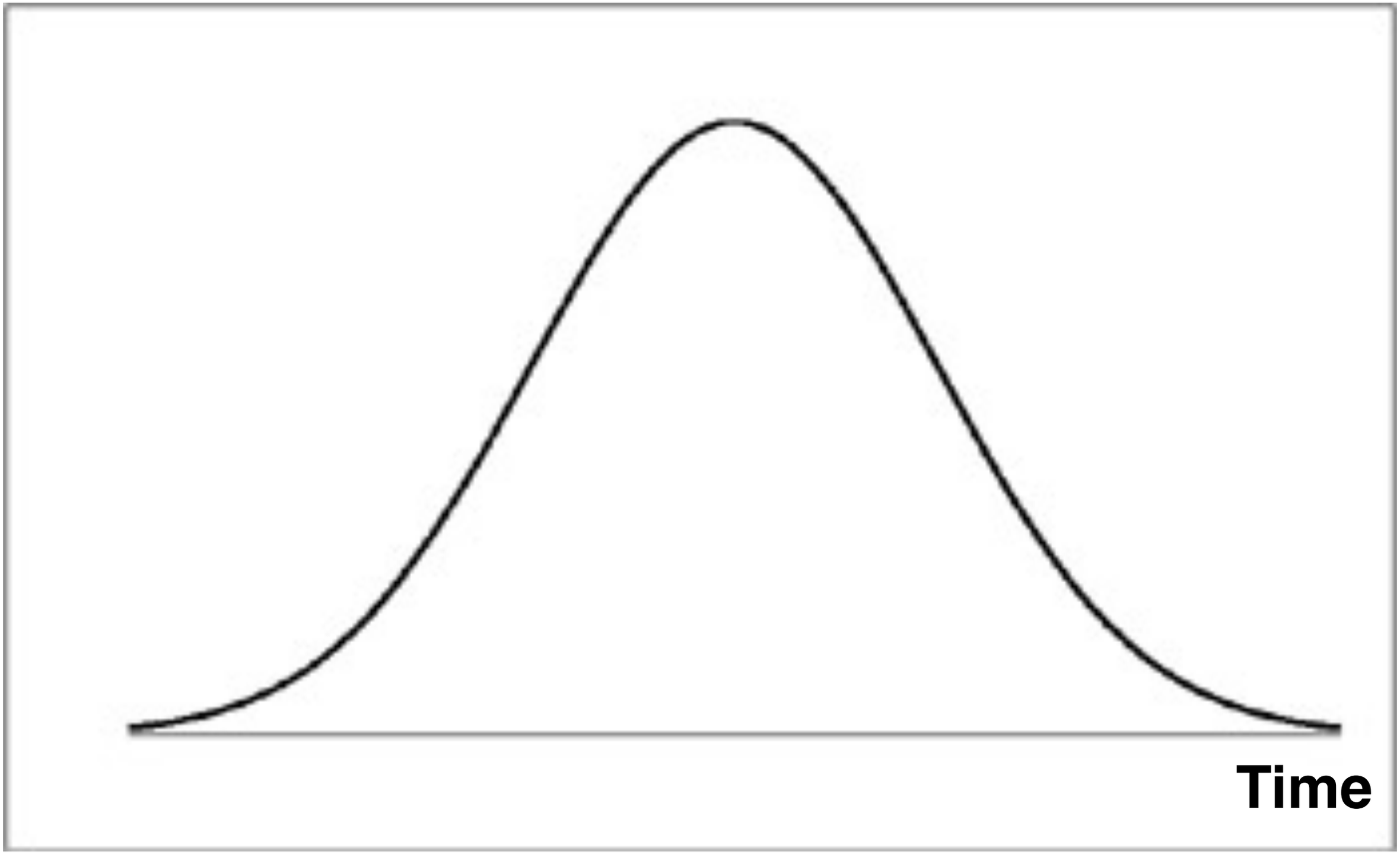
**Phil Gibbons** (Big data, parallel computing, databases, sensor networks, courses: Advanced OS and DS, Optimizing compilers for modern architectures)**:**

- WEAD: Write efficient algorithm design for settings  where read/write behavior is asymmetric.
- Big Learning systems: machine learning from a systems perspective.
- Intel Science and Technology Center:
- IEEE symposium on edge-computing: cloudlets, fog coputing
- LBA:
    - *Can some of the ideas from LBA be used with things like Intel Harp*?
- Protocols to reduce sybil attacks.
- Aqua: Approximate query answering for fast exploratory data analysis of massive data sets.
- Claytronics: catoms build 3D display of information. Users senses will perceive digital information as though they are reality.
- HiSpade: Hierarchy-savvy parallel algorithm design: hard to program when one is aware of the parallelism and hierarchy in the file system. Goal in this project is to hide what aspect of the hierarchy can be hid and expose what can be exposed and make sure the algorithms are robust across many platforms.
    - *One thing I am interested in is how things like phase change memory effect programming APIs*?
- Bosen. SoCC'15 best paper: Update propagation time in an ML system impacts convergence of the ML model. Bosen increases the network communication efficiency while ensuring convergence for large scale data parallel ML applications.
- Benchmarking parallel applications: benchmarks will be defined in terms of interfaces rather than code so that they can be compared across machine types and programming languages.
- Cache-efficient parallel algorithms: cost models & algorithms for taking advantage of locality.
- Thread-scheduling: developing scheduling dynamic parallel languages and studying how they affect time, memory, and cache performance.
- You have done work on proving properties about performance behavior of systems. And from what I understand you rely on an abstract model and therefore you can do this without worrying about the underlying hardware diversity.
    - *I am curious whether it is challenging to maintain/upgrade models, or instantiate the actual hardware parameters*?
    - *Have you looked into that and if so what are the challenges that could arise*?

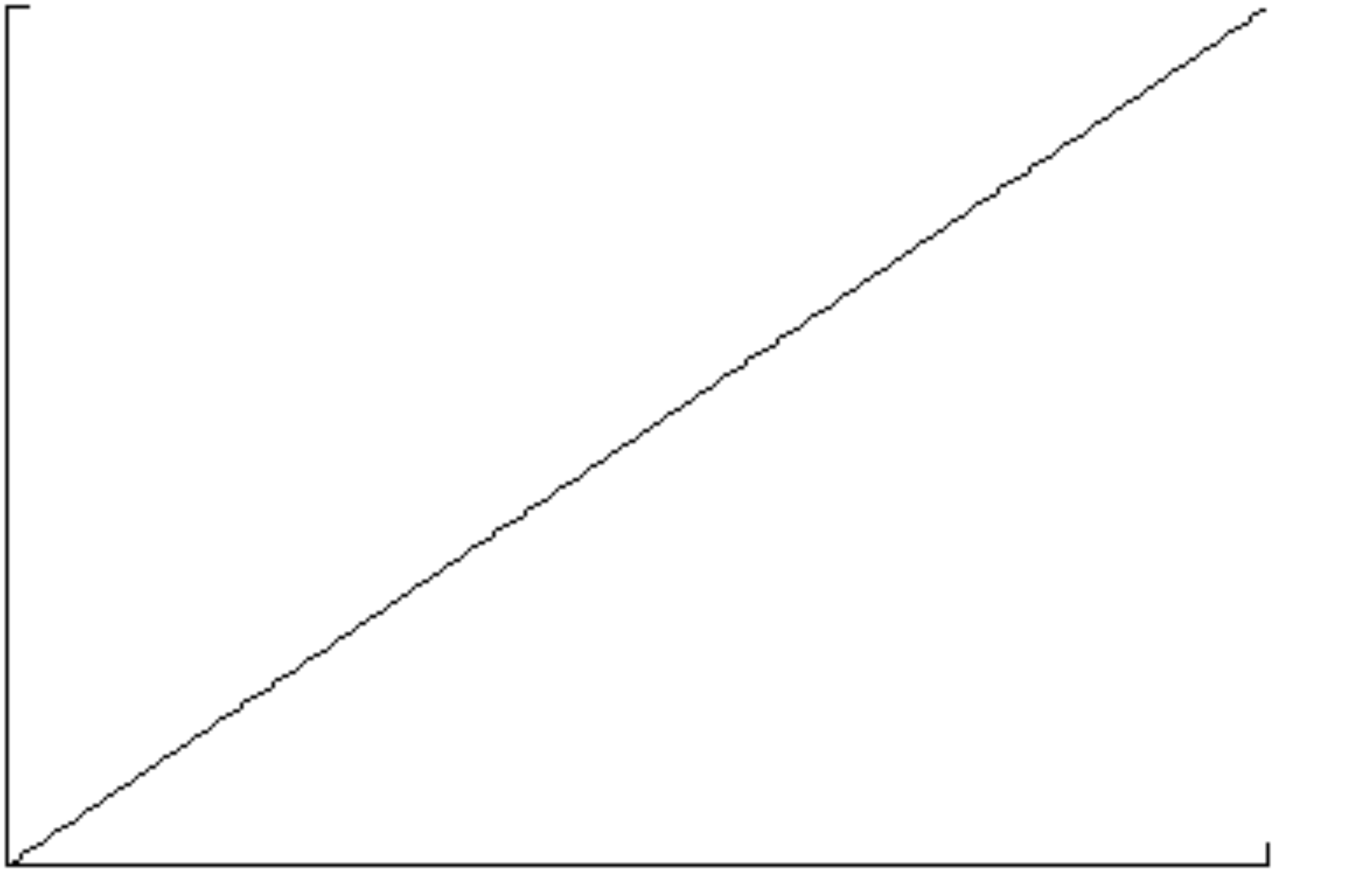
**Garth Gibson** (Large scale parallelism, Storage, courses: OSDI)**:**

- Stable multithreading: Parrot (SOSP'13): stability and predictability by ordering threads in a round robin schedule. If default schedules are too slow, developers can write intuitive hints to speed the systems up. Integrates with the dbug model checker.
- dbug: systematic testing of multithreaded applications without modifying the apps. It is like a lightweight model checker that checks for runtime errors, deadlocks, conflicting non-reentrant functions.
- RAID
- Object-based storage
- *Informed Prefetching and Caching (TIP)*: Use hints to disclose I/O accesses. A system to evaluate

# Interview performance (Expected)



# Interview performance (Actual)



# Acceptances

- Michigan CS
- GATech CS
- Toronto  CS
- UCL CS
- Boston University ECE
- UBC ECE
- Rochester CS
- MSR Cambridge
- MSR Redmond
- VMware Research

# Rejections

- CMU CS
- Georgia Tech ECE
- Max Planck Institute of Software Systems

# Polite Declines

- Rice
- USC
- Simon Fraser

# Final Options

- Toronto
- Michigan
- GATech CS
- UCL

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# Everything is Negotiable

- As long as there is context for it
    - School X offers me Y, what about you?

# Second Visits

- Toronto
- Michigan
- GATech CS

# Few Words About Research Labs

- Similar to academic interviews
- Expect programming/algorithmic questions
- Can be very intense
    - There are many experts that know your field well

# Questions?