A few things I learned along the way

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Link to captions

https://bit.ly/3vGwFnl

Outline

- My background
- My research unifying thread
- A few things that help my journey
- Let me tell you about NSF!

About Dilma

Since 2014 in different roles:
Professor (since 9/20); interim director of two institutes
Professor and part-time Associate Dean (2019-2020)
Department Head and Professor (2014-2019)

Since July/22:
CISE/CCF Division Director
Since Dec/23
CISE Acting Assistant Director

Principal Engineer & Manager
Qualcomm Research
2 years

Researcher; Manager
IBM T.J. Watson Research Center
12 years

Assistant Professor
University of São Paulo, Brazil
1996-2000

EDUCATION

PhD
Georgia Tech

BS, MSc in Computer Science
University of São Paulo, Brazil

Research Areas: Distributed Systems, Data Science, Cybersecurity, CS education
Multidisciplinary efforts: Food Safety, Energy Systems, Transportation

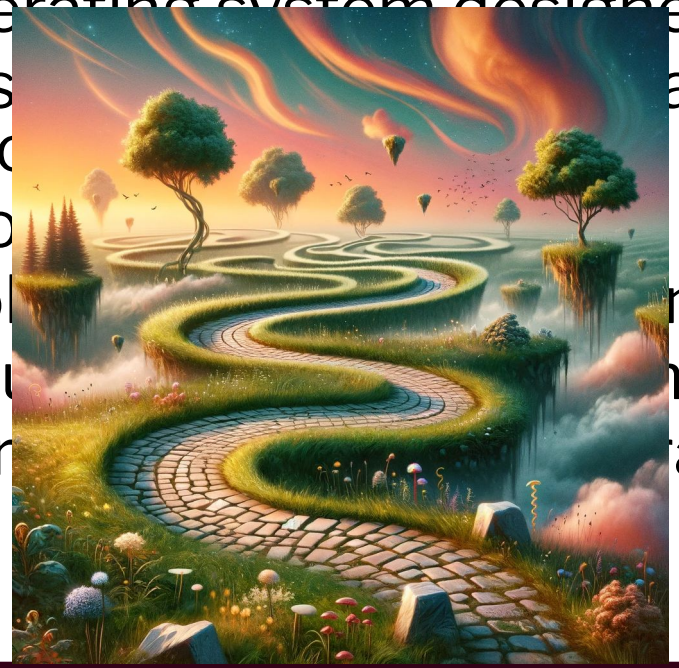
About Dilma – For Fun

A common research theme: System Scalability

This is a narrative, not a strict list of projects!

The rise of parallel computing brought a challeng
more resources did not imply in more work done
Approaches we pursued:

- 90s: adaptation to the workload; identifying race conditions, better synchronization mechanisms for real-time operating systems
- 2000-2006: a new ope ed from scratch to scale
- 2007-2012: scaling sys aling cloud services; scaling database memc
- 2011-2012: exascale co
- 2012-2014: scaling mo ng app management
- 2016-??: scaling statefu g, edge-computing
- 2019-??: scaling server ated learning



Some lessons learned (perspectives that help me)

TEXAS A&M UNIVERSITY
Department of Computer Science & Engineering

#1 – I found my sweet spot in technical breadth vs depth

```
__init__(self):
gpu = gpuInfo.get_gpu(0)
self.load = int(gpu.query_load() * 100)
self.gpu_clock = int(round(gpu.query_
self.gpu_memory_usage = round(gpu.query_
self.gpu_gtt_usage = round(gpu.query_gtt_
self.power = gpu.query_power()
self.voltage = round(gpu.query_graphics_
fans = sensors_fans()
for name, value in fans.items():
```

depth

#2 – It pays off never being too busy for …

- Mentoring or helping a junior person
- Coaching and/or sponsoring a colleague
- Learning something apparently useless
- Read for fun and to learn about the human experience

… easier when not a perfectionist

#3 – embrace phases of lack of visible progress

Important growth has happened in ways not observable in my CV

#4 – I accept and leverage being underestimated

#5 Work / life balance is very personal

Let me talk a bit about the U.S. National Science Foundation!

U.S. National Science Foundation's Mission

"To promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense..."

In an average year, NSF:

Funds ~12,000 competitive awards for research, education and training

Supports ~2,000 colleges, universities and other institutions

Supports ~318,000 researchers, entrepreneurs, students and teachers

CISE by the Numbers

NSF funds **80%** of federally-funded CS in the US at academic institutions.

$1,035.9 M
Enacted budget for fiscal year 2023

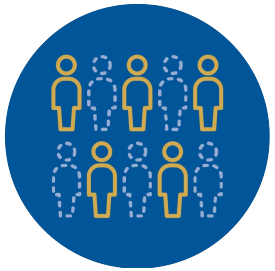
6,401
Proposals evaluated

29%
Funding rate

1,847
Awards made

371
Institutions supported

6,647
Grad students



21,623
Individuals from senior researchers to undergrads

48 + D.C. + 1 territory

89
Minority-serving Institutions

All data depicted is for fiscal year 2023.




NSF's STRATEGIC THEMES

Advancing Emerging Industries for Economic and National Security

Creating Opportunities Everywhere

Building a Resilient Planet

Strengthening Research Infrastructure

Now is an amazing moment in computing and science in general!

Questions?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