

# Entrepreneurship Opportunities & Skills

*Kunle Olukotun*  
*Stanford University*

2019 CRA URMD Grad Cohort Workshop



# Kunle Olukotun

- **Professor of EE and CS at Stanford since 1992**
  - **Cadence Design endowed chair**
- **Computer architecture and parallel computing**
- **Pioneer in CMP (multicore) processor design**
  - **Stanford Hydra project**
- **Parallel programming for all programmers**
  - **Director of Pervasive Parallelism Lab (PPL)**
  - **High-performance Domain Specific Languages (DSLs)**
- **Data Analytics for What's Next (DAWN)**
  - **Democratizing machine learning**

# Academic Research and Startups

- When you can't find an industrial partner for your ideas make one
- Technology transfer by PhD
  - Understand the initial market for your product (technology)
  - What is your unfair advantage
  - More robust technology than research prototypes
  - Cost of schedule slip is much worse
  - You don't have much time for research at a start-up
- Pick your team wisely
  - Technical team (lab partners?)
  - Management team (who is making decisions)
  - Cap table
- Funding issues
  - Investors (smart vs. dumb)
  - Angels vs Venture Capital firms

# Startup Pros/Cons

## *Pros*

- Don't have to convince existing company to change course (until exit)

## *Cons*

- Have to convince investors (repeatedly)
- Have to build a whole company, not just a development team
  - Finance, sales, marketing, ...
- Limited resources
- Impatient capital

# Afara WebSystems

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- Founded in 1999
  - Height of internet boom
  - Large web sites running out of power and space
  - Goal: Revolutionize internet data centers (multi-B \$ market)
  - Goal: Approach: 10x performance/watt with new microprocessor based on high-throughput CMP
- Sold to Sun Microsystems in 2002
  - Dot com bomb and VCs wanted to cash-out
  - Sun processor design lagging
  - Niagara 1 design
  - 9 generations of Niagara at Sun and Oracle
  - \$1 billion revenue per year

## Mines.IO:

# Data-Driven Automation of Loans, Credit Cards, & Savings

- Founded in 2013
- Delite: high-performance machine learning platform
- Started with seed investment (\$3m), Series A in 2018 (\$13M)
- Operating in Nigeria and Brazil



# SambaNova Systems



## Vision

- *Lead industry* in machine learning and data analytics infrastructure with new AI processor
- *Highest Ease of Use* with automated model optimization and compilation for Hardware
- *Deliver unprecedented* performance to accelerate growth of intelligent applications in enterprise

## At a glance

**Nov '17**  
founded

**\$56M**  
Series-A

**Palo Alto**  
California

**140**  
HW/SW Engineers



**Kunle Olukotun**

Professor of EE and CS,  
Stanford Univ.



**Rodrigo Liang**

Ex-SVP Processor & ASIC  
Dev. Oracle Corporation



**Chris Re**

Assoc. Professor of CS  
Stanford University

## Academic



Concept



Analysis



Simulation



Prototype



Refine Concept



Detailed Design



## Startup