Chapman University

Grand Challenge Presentation

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EDUCATION

B.S. In Electrical Engineering, Stanford University
M.S. in Electrical Engineering, U.T. Austin
MBA, Stanford University

INVESTMENT CAREER

- Venture Capital – 25 years across multiple funds: Sevin Rosen Funds, Maven Venture Partners, Grit Ventures
- Invested in Telecom, Industrial Automation. Manufacturing, Enterprise AI, Logistics, Space, Physical AI
- Repeat Entrepreneur: Co-founded Watermark (premier organization for women entrepreneurs and executves) and Rallyon (venture funded enterprise wellness platform)

UNIVERSITY ADVISORY BOARDS

Serve(d) on 9 University Boards: Stanford School of Engineering, Stanford Business School Center for Entrepreneurship, UT Austin School of Engineering, UT Austin Computer Science, Indiana University Business School, Chapman University Engineering, UC Santa Cruz Engineering

Stanford University

TEXAS
The University of Texas at Austin

SEVIN ROSEN FUNDS

MAVEN VENTURE PARTNERS

Grit Ventures

Labs to Launch:
Commercializing Innovation from the Labs

- AI: Biggest Technology Wave in History?
- University-based Entrepreneurship
- Venture 101: Milestones and Fundraising
- Career Advice for Innovators

The global innovation race is ON.

Every nation, every industry, every company must ignite a new AI-driven industrial revolution to stay competitive.

INDUSTRIAL AUTOMATION | SUPPLY CHAIN + LOGISTICS | ENERGY + COMPUTE | AEROSPACE

The AI Revolution is here at the same time we are battling global warming. Training GPT-3 required nearly 1300 MWh of electricity which is equal to the annual power consumption of 130 US homes. Training GPT-4 is estimated to required 50X more electricity.

The computing power needed for sustaining AI's growth is doubling every 100 days.

Global data center energy demand will double in the next 5 years to 100GW.

We need exponentially more energy efficient solutions.

The stakes are high in the AI innovation race.

LABOR SHORTAGES GETTING WORSE

Robotics/Industrial Automation has done little to relieve people of “dirty, dull, dangerous” jobs and we are still facing critical labor shortages in every major industrial vertical around the world.

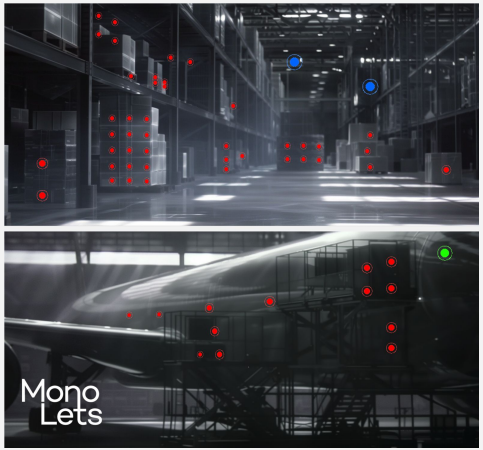
AMERICAN COMPETITIVENESS AT STAKE

We are in a deglobalization cycle. The US needs to invest in industrial automation, manufacturing and training while decreasing our carbon footprint to improve the human condition, drive GDP growth and ensure American competitiveness.

THE AI INNOVATION RACE IS ON

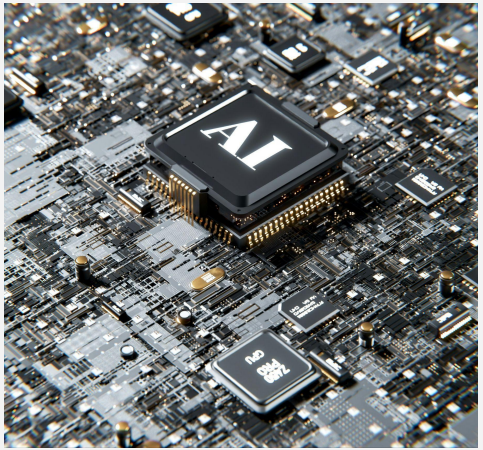
The impact of Generative AI on economies will be revolutionary. McKinsey global Institute predicts that it will contribute $2.6T to $4.4T annually to GDP. Automation professionals will be in high demand. Upskilling and training workers will be critical.

US needs to Invest in Breakthrough Technologies to Rebuild and Reinvent 21st Century Infrastructure



SUPPLY CHAIN + LOGISTICS

The chip shortage during COVID 19 pandemic cost the U.S. economy $240 billion in 2021 → A massive market opportunity to transform supply chain resilience.



COMPUTE INFRASTRUCTURE

An NVIDIA H100 GPU consumes as much energy as an average American household.

INDUSTRIAL AUTOMATION

Early industrial automation was limited by rigid, failure-prone machines. The next generation of generative AI enabled machines is resilient and adaptive.

We are just getting started...

In September 2024 there were only 4.2M industrial robots worldwide.

Other than Amazon and automotive companies, there is relatively little automation.

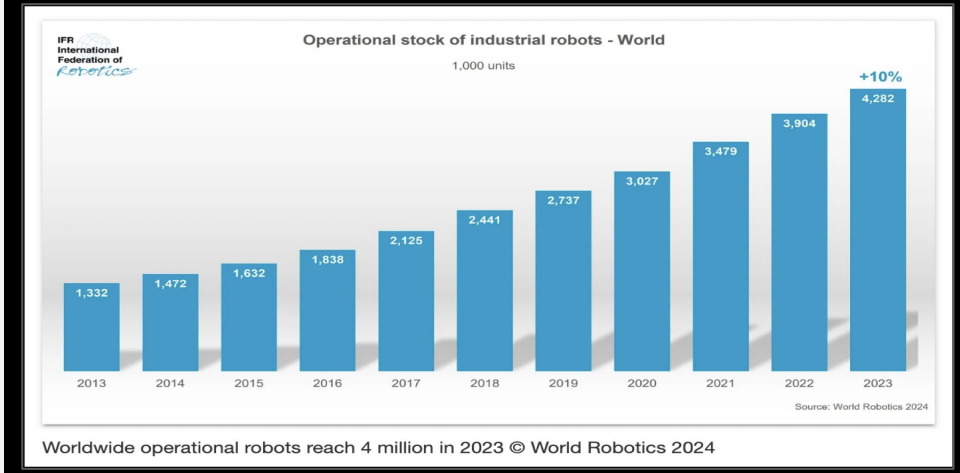
Warehouse robotics solutions have only automated ~5% of warehouse.

In the Manufacturing sector, the global robot-to-human ratio is 1:71.

Amazon has deployed 21% of these robots

"We have more than 750,000 mobile robots in our operations and thousands of other robotic systems that help move, sort, identify, and package customer orders. It's taken us more than 10 years to reach this scale."

– Tye Brady, Amazon



Worldwide operational robots reach 4 million in 2023 © World Robotics 2024

Every Foundational Industry will be Transformed

MANUFACTURING

Inspection/Quality Control
Yield Forecasting/Analytics
Advanced Materials: Composites
Circular economy solutions
Packaging + Supply Chain Improvements
Advanced Manufacturing: design, validation, flexible processes

LOGISTICS

Digital Infrastructure
Real Time Resilient Supply Chain Visibility
Big Yard Logistics
Port Infrastructure
Hyperloop and Alternative Logistics
Mobility:AVs land,air and sea

AGRICULTURE

Charging Infrastructure
Automating all Farm Operations
Packaging, Transportation
Farm intelligence/Planning
Logistics + Supply Chain
Sustainable food production
Regenerative Farming

CONSTRUCTION

All Trade automation including new use cases: Electrical, Facades, plumbing, framing
Heavy Machinery automation
Infrastructure Inspection

MARITIME

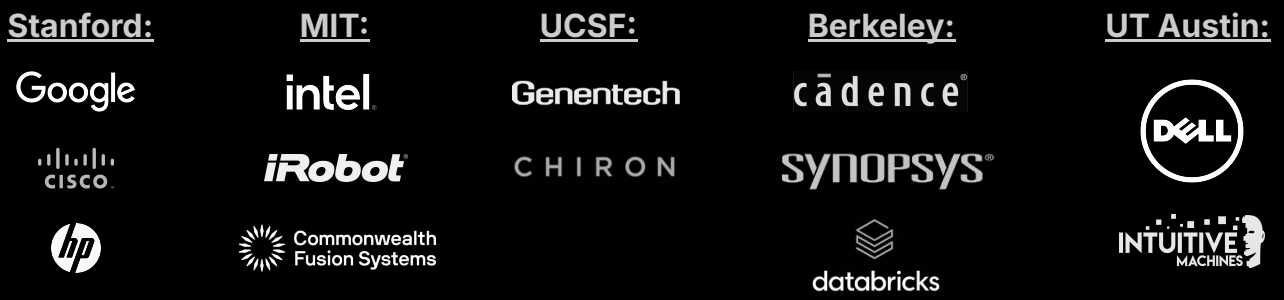
Subsea mapping with UAVs
Autonomous inspection and protection of undersea resources (for example cables)
Automated Discovery: critical minerals and resources

AEROSPACE

Evolving AV development and training
Space Robotics

University-based Entrepreneurship

American universities are deep tech epicenters and have spawned entire industries.



- From 1996 - 2020, American university technology transfer produced $1.5T of industrial output. 125000 patents, 17000 startups.
- Created entire industries such as autonomous driving and generative AI.

A Story About The Rise of Humanoids

A Multi-Decade-Long Journey from DOD and NASA Funding to Humanoids

2013

ARMY FUTURES DARPA + NASA

NASA builds Valkyrie Project to compete in DARPA Robotics CHallenge

2015

UNIVERSITIES

Apptronik emerges from the Human Centered Robotics Lab at UT Austin, secures $12M in Government funding + contracts Partners with Nasa on Valkyrie humanoid

2021

PARTNERING

APPTRONIK:
Grit led Seed Round and took a board seat And drove transition from technical founder CTO to business CEO

Company partnered with Sanctuary and takes over Valkyrie from Nasa

Beyond 2024

100 HUMANOID STARTUPS

2023: Partnership with Mercedes
2024: $350M round at unicorn valuation with participation from Google

Venture 101: Milestones and Fundraising

Types of Funding

Incubators and Accelerators

- Access to domain/mentor knowledge (example: space, materials, and etc).
- Market positioning (suppliers, customers)
- Resource help such as capital, office space, clearance, and etc.
- Problem driven

Venture Capital

- Lead, take board seats, often take control
- Value Add: governance, recruiting, strategic and funding introductions

Corporate Capital

- Access to startup technologies through minority ownerships
- Characteristics:
  1. Stage agnostics
  2. Typically don't lead and only take board observer seats.
  3. Warrants and collaboration agreement
  4. Business areas buy-ins
  5. Mission Driven
  6. Internal Integration

Fundraising Terminology

Angel/Incubator

Concept/Research

- **$250K-$1M Round**
- **Valuation: <$6M pre**
- Research and/or Technology plan
- Some Customer Discovery
- Founding Tech Team

Pre-Seed

Product Market Fit

- **$1M - $2M round**
- **Valuation: $6 - 10M pre**
- Working Prototype
- Customer Discovery Complete
- Secured Pilot
- Development Team in place

Seed

Go-to-Market

- **$3M - $7M Round**
- **Valuation: $10M - $18M**
- Pilots completed
- ~$1M ARR
- GTM Strategy
- Preliminary Business Model
- Some key business hires

Series-A

Scale

- **$8 - 20M Round**
- **Valuation $20 - $50M**
- $10M ARR
- Mostly complete Leadership Team

Different Types of Venture Funds

Specialized

Fund Size: $10-$100M

- 80/20 carry split (LP/GP)
- 1-2 GPs
- LPs: individuals, Family Offices, Corporates

Returns: 3-10X

Early Stage

Fund Size: $100-$250M

- 80/20 or 75/25 carry split (LP/GP)
- 3-6 GPs
- LPs: Family Offices, Institutions, Corporates

Returns: 2-5X

Elite

Fund Size: $250M-$1B

- 80/20 or 75/25 carry split (LP/GP)
- 4-10 GPs
- LPs: Institutions

Returns: 2-3X

Growth

Fund Size: $1B+

- Wider range of carry split
- 4-15 GPs
- LPs: Institutions

Returns: 2-3X

Career Advice and Q&A

Career Advice

1

Commit to a Graduation Plan that is unique to you.
For example: I want to speak fluent Spanish and leverage it in my first job. Or I want to work in the Space Industry. Or I want my first job to be in Southern California.

2

Invest in the Power of Relationships
Start now. Reach out to a few Chapman grads every few months who are in positions you are interested in. Ask them to describe their jobs. Start building your Linkedin network. Meet people in person when you can. Listen. Collaborate. Pay it forward.

3

Entrepreneurship is a State of Mind.
You are an entrepreneur already. You are building your own career and are on your own journey. You can be an innovator in a big company or a startup.

Career Advice

4 **Intelligence is multi-dimensional**
You are not just an achiever in math, science, and engineering. You have other strengths like compassion, creativity, perception, leadership

5 **Stick to your values.**
What matters to you? Don't forsake it for career success.

6 **You only need one job offer at graduation.**
There are thousands of companies. You can still apply to Amazon, Google, NVIDIA, Microsoft, Apple, etc but there are thousands of other companies

7 **Explore Graduate School**
Think of it like an investment. Will it pay off for you and your career goals?

Have Fun!