Future of Decentralization, AI, and Computing Summit

Opening Remarks

Agenda

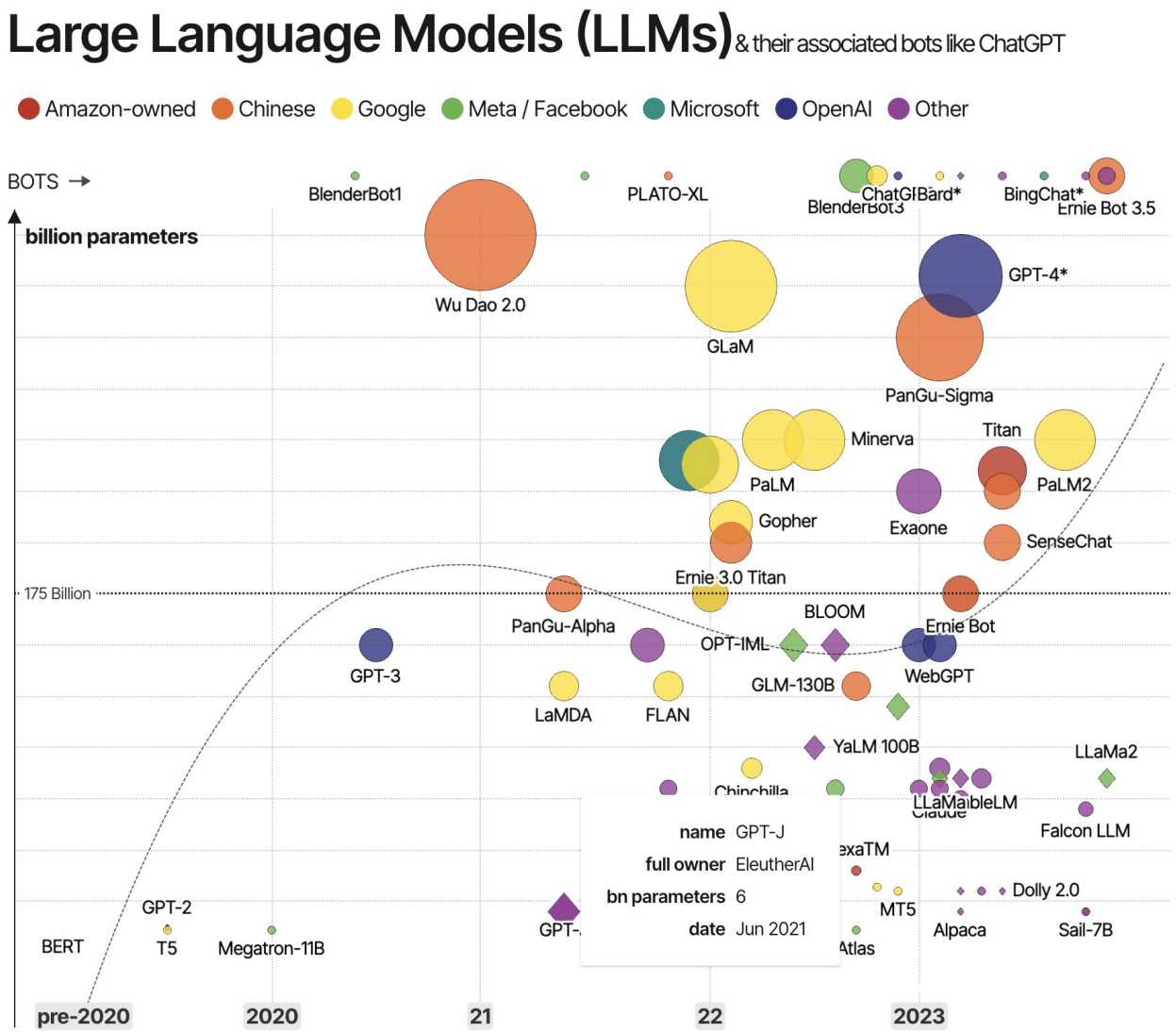
Dawn Song
Professor, UC Berkeley
Co-Director, Berkeley RDI

Berkeley Center for Responsible, Decentralized Intelligence

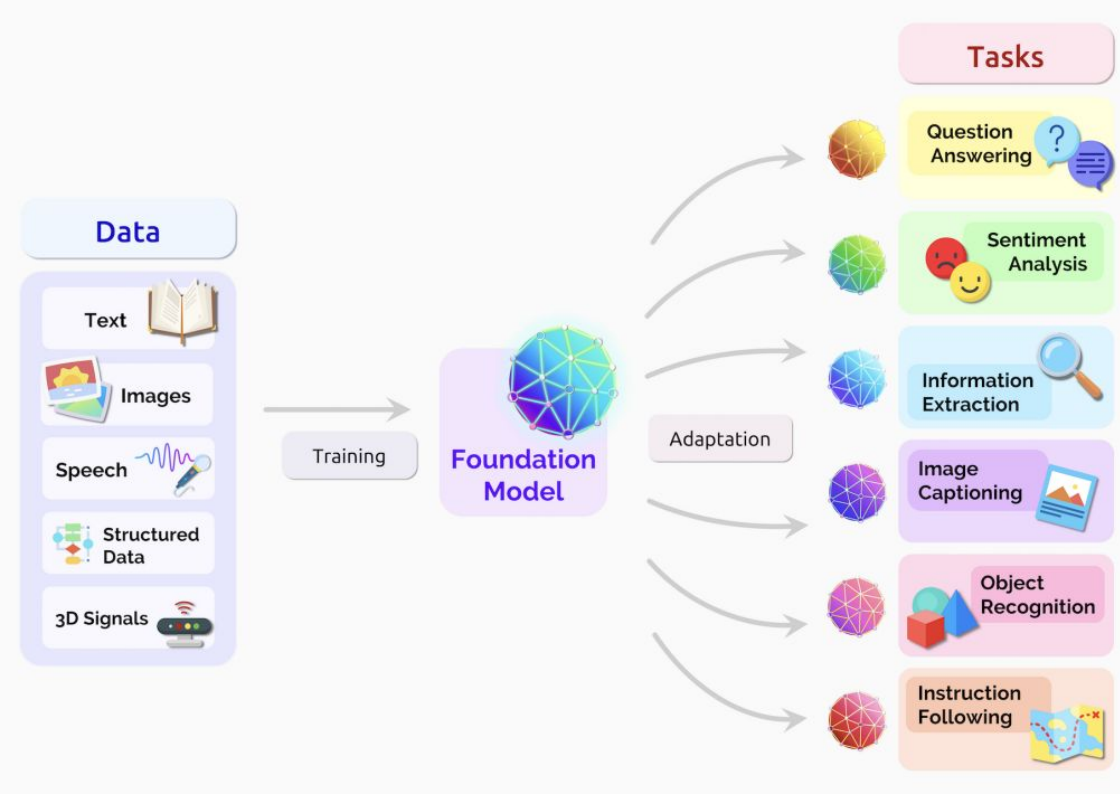
rdi.berkeley.edu/events/decentralizationaisummit

Aug 27, UC Berkeley

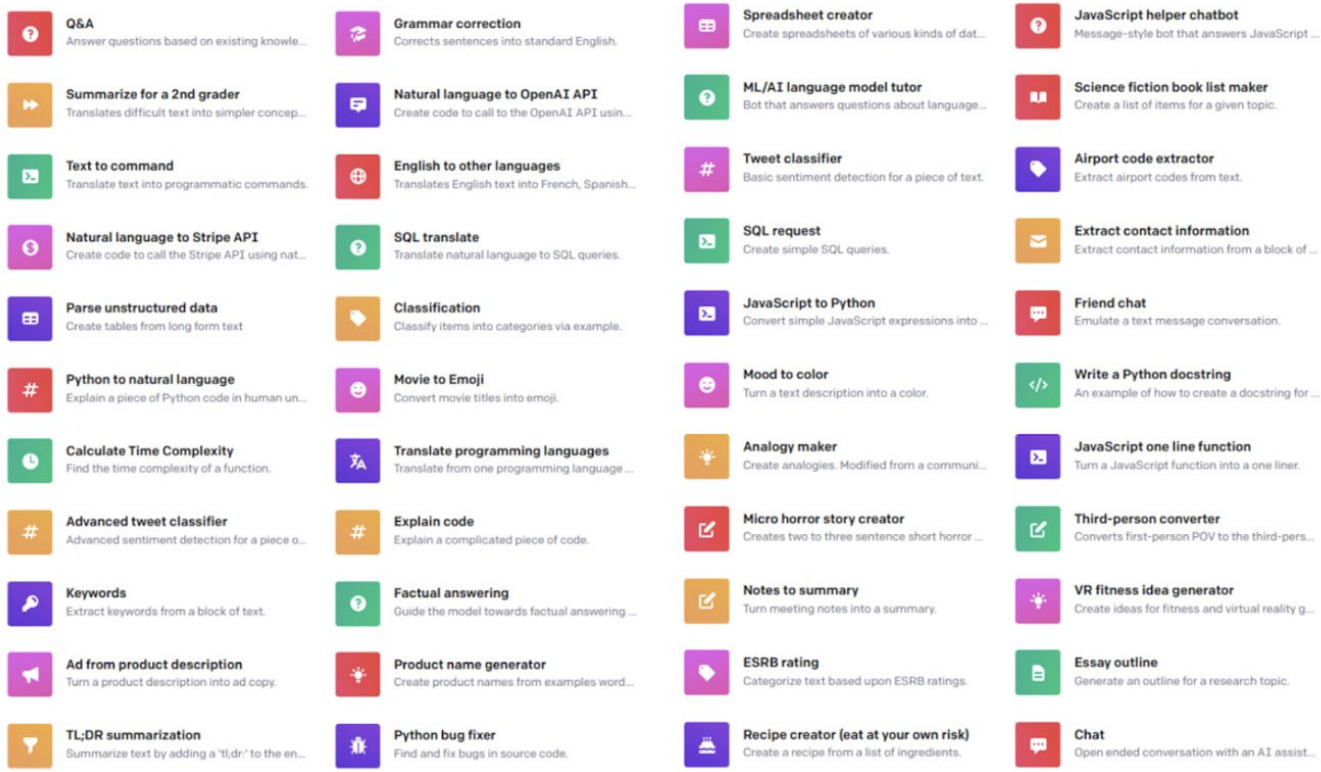
Exponential Growth in LLMs



Powering Rich New Capabilities

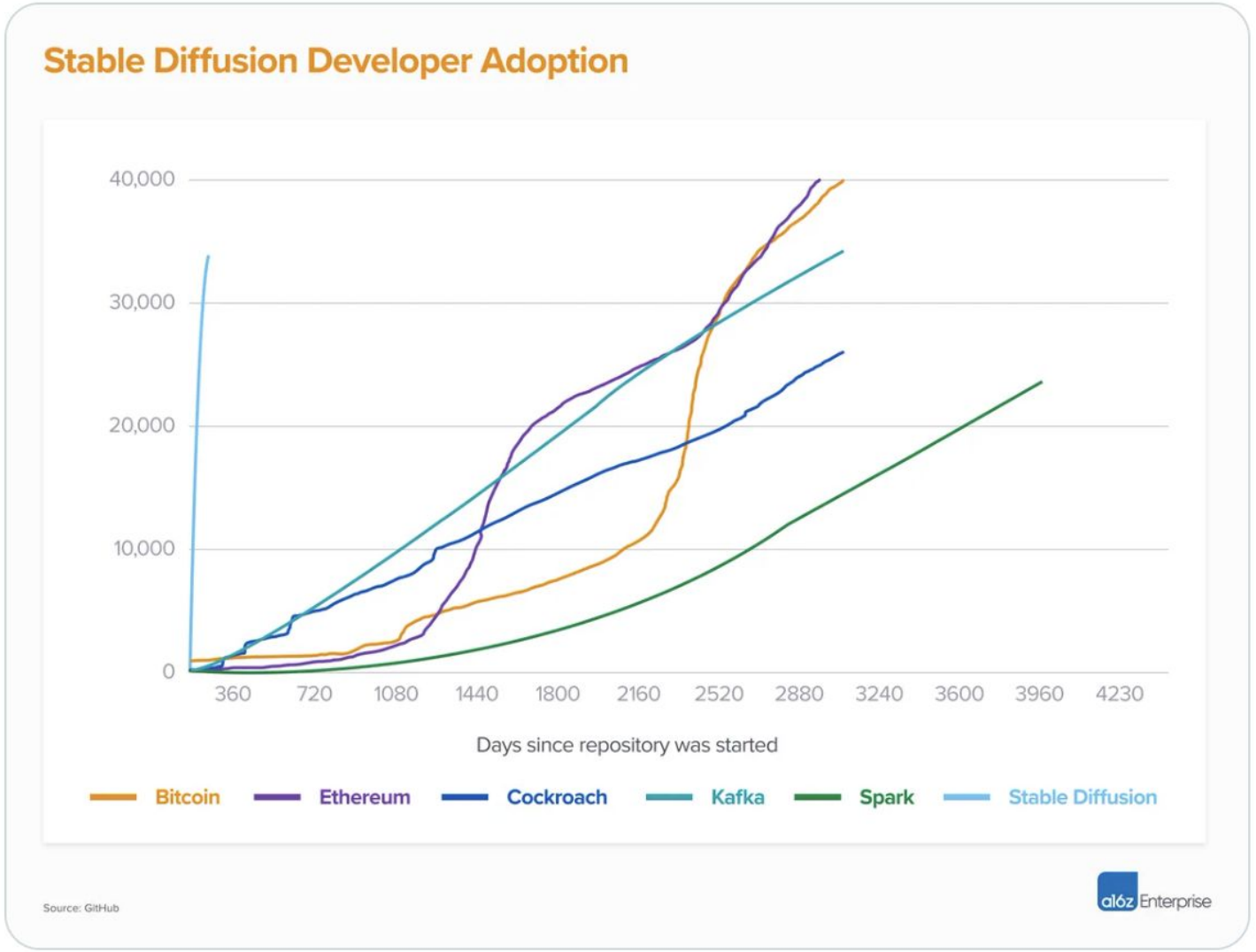


https://arxiv.org/pdf/2108.07258.pdf

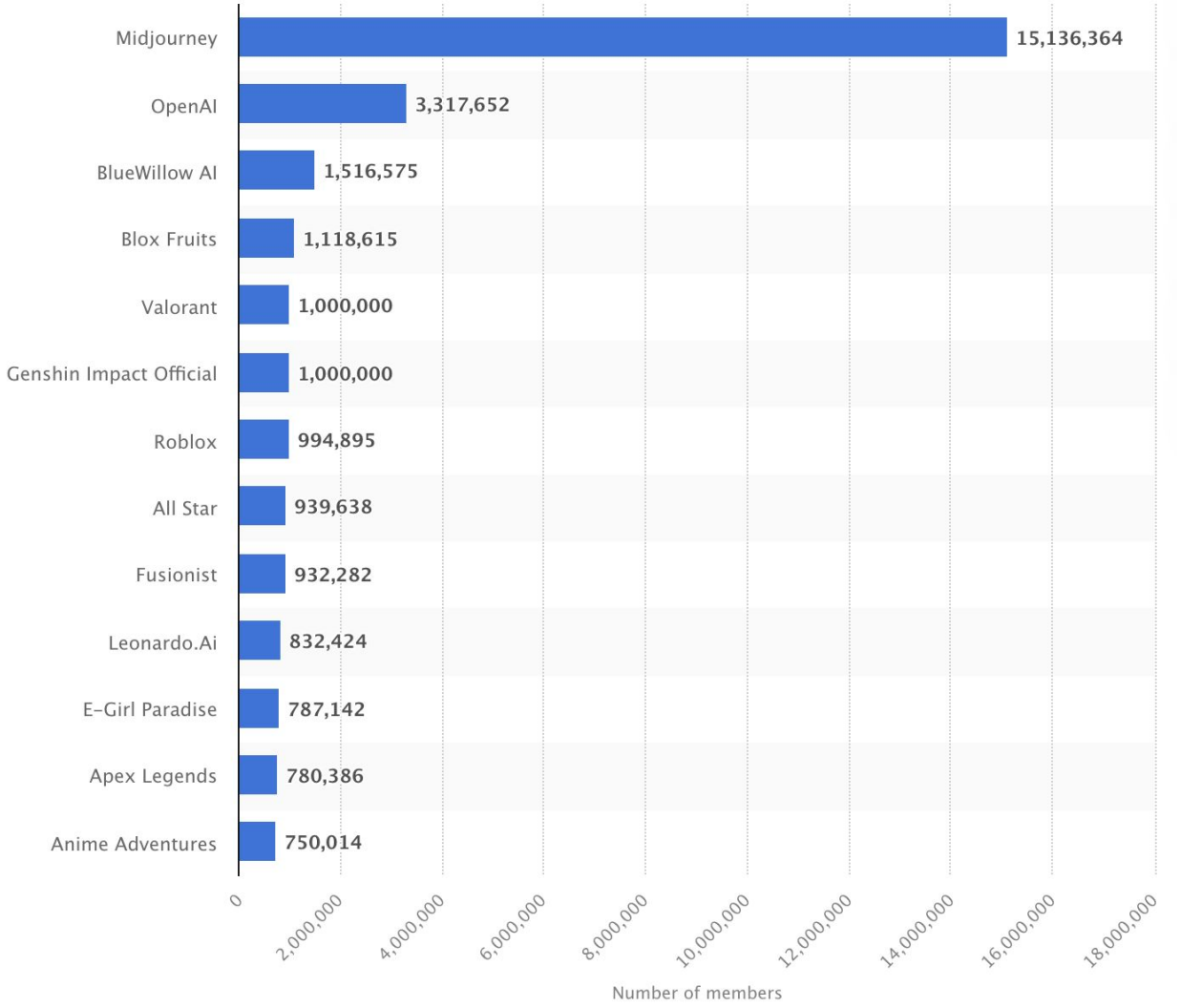


Source: openai

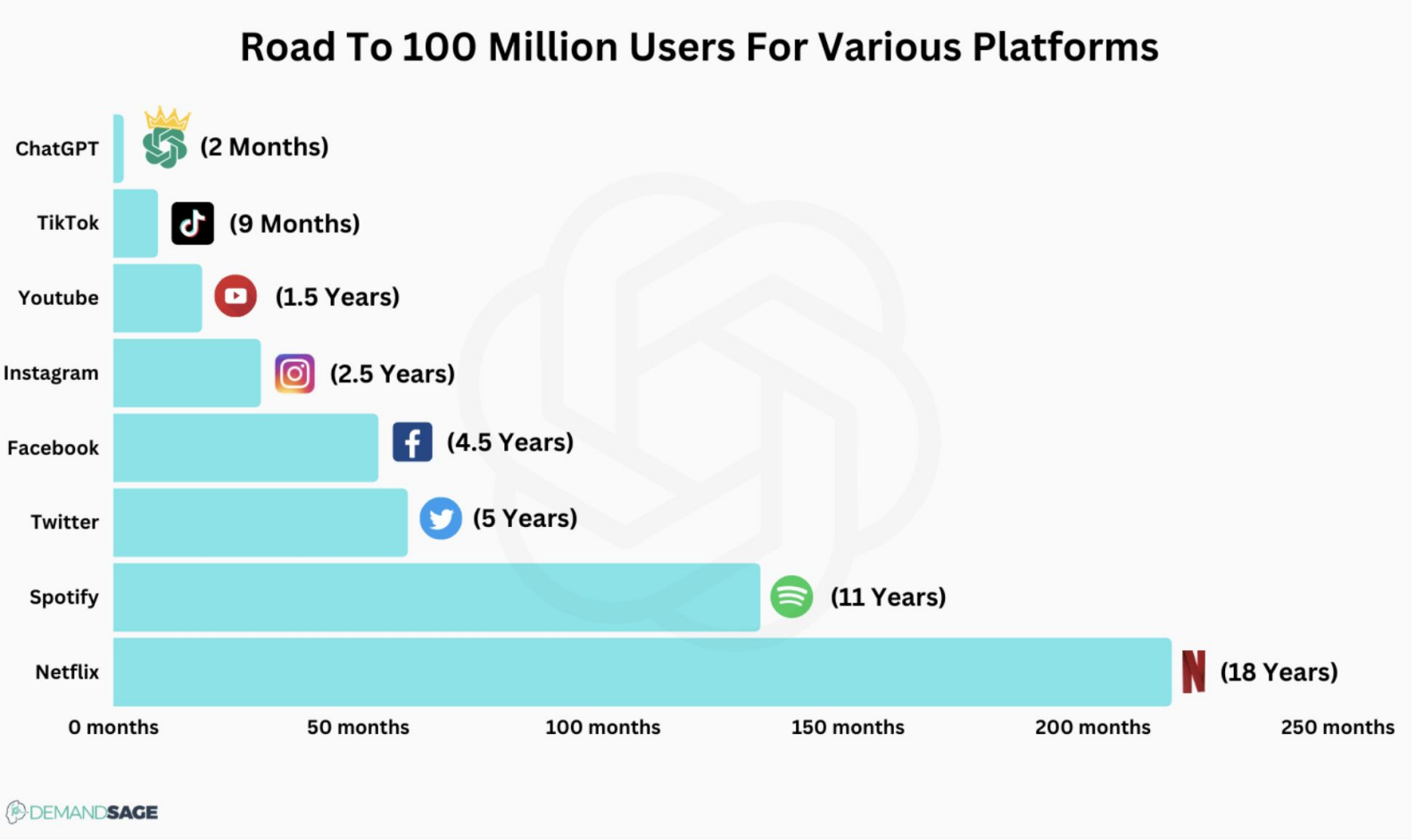
Stable Diffusion: Fastest Repo to Reach 35K Stars on GitHub



Midjourney: The Largest Discord



ChatGPT: Fastest Platform to 100M Users



Many Risks & Open Challenges for Responsible AI

- Who controls AI?
  - centralized vs. decentralized control; open vs. closed source
- Trustworthiness
  - Robustness
    - Adversarial robustness
    - Out-of-distribution robustness
    - Test-time attacks vs. training-time attacks
  - Privacy
  - Fairness
  - Toxicity
  - Stereotype
  - Machine ethics
- AI Safety
  - Misuse/abuse of AI
  - Super intelligence

Importance of Mitigating Risk of Extinction from AI

Mitigating the risk of extinction from AI should be a global priority alongside other societal-scale risks such as pandemics and nuclear war.

Center for AI Safety

The New York Times

A.I. Poses 'Risk of Extinction,' Industry Leaders Warn

Leaders from OpenAI, Google DeepMind, Anthropic and other A.I. labs warn that future systems could be as deadly as pandemics and nuclear weapons.

Signatories:

☑ AI Scientists ☑ Other Notable Figures

Geoffrey Hinton
Emeritus Professor of Computer Science, University of Toronto

Yoshua Bengio
Professor of Computer Science, U. Montreal / Mila

Demis Hassabis
CEO, Google DeepMind

Sam Altman
CEO, OpenAI

Dario Amodei
CEO, Anthropic

Dawn Song
Professor of Computer Science, UC Berkeley

Ted Lieu
Congressman, US House of Representatives

Bill Gates
Gates Ventures

Ya-Qin Zhang
Professor and Dean, AIR, Tsinghua University

Ilya Sutskever
Co-Founder and Chief Scientist, OpenAI

Shane Legg
Chief AGI Scientist and Co-Founder, Google DeepMind

Future of Responsible AI with Decentralization & Democratization

- Can we build a full decentralized, open-source stack for AI/ML:
  - Open-source decentralized AI/ML infrastructure for training and inference, with provenance, integrity, privacy guarantees
  - Open-source models and tooling
  - Personalized AI with privacy and trustworthiness
  - Decentralized, cooperative AI with incentives and social welfare
  - Democratic, decentralized process for AI governance & alignment

Open Challenges

- Is this technically feasible?
  - Is it possible to close the gap btw open source & closed source models?
  - Is it possible to scale decentralized training to large scale models?
  - Is it possible to build autonomous cooperative, decentralized agents?
- How to design proper incentive to maximize societal benefits?
- Can such an open source, decentralized system lead to more misuse/abuse? Is this at odds with AI safety guarantees?
- What are the different alternatives and possibilities that should be considered?

Spark the Initial Conversation & Cross Pollinate btw Diverse Domains

- AI & ML
- Security & Privacy
- Game theory & Economics
- Decentralization technology
- …

Agenda

- 9:30 AM Session I: Open source LLMs
- 10:30 AM Session II: Decentralized and Distributed Machine Learning Infrastructure
- 11:40 AM Session III: Cryptography & ML; Personalization
- 1:30 PM Session IV: Open-source LLMs tools & ecosystem
- 2:15 PM Session V: Multi-agent Systems & Economics
- 3:20 PM Session VI: Future Directions in AI + Decentralization
- 4:30pm Lightning talks, Startup spotlights, Xcelerator Demo day, Reception

Berkeley Center for Responsible, Decentralized Intelligence

rdi.berkeley.edu/events/decentralizationaisummit

Aug 27, UC Berkeley

Berkeley Center on Responsible Decentralized Intelligence (RDI)

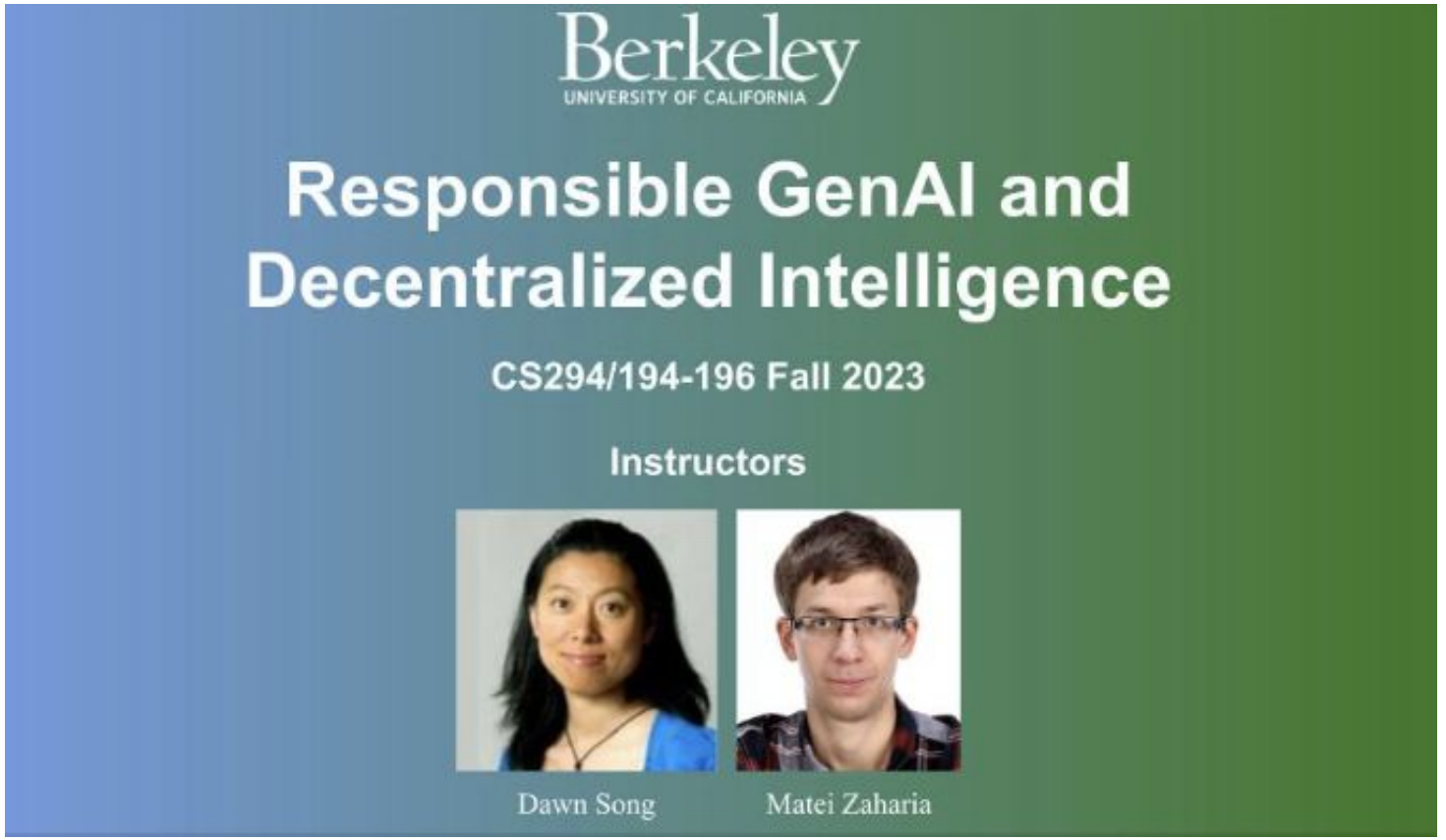
Mission: Advance the science and technology of decentralization & decentralized intelligence, to make it universally accessible and empowering a responsible digital economy.

Campus-wide, multi-disciplinary: EECS/School of Engineering, Haas Business School, Law School

https://rdi.berkeley.edu/

Berkeley Engineering BerkeleyHaas Berkeley Law Berkeley Computing, Data Science, and Society

Diving Deeper



https://rdi.berkeley.edu/responsible-genai/f23

Agenda

- 9:30 AM Session I: Open source LLMs
- 10:30 AM Session II: Decentralized and Distributed Machine Learning Infrastructure
- 11:40 AM Session III: Cryptography & ML; Personalization
- 1:30 PM Session IV: Open-source LLMs tools & ecosystem
- 2:15 PM Session V: Multi-agent Systems & Economics
- 3:20 PM Session VI: Future Directions in AI + Decentralization
- 4:30pm Lightning talks, Startup spotlights, Xcelerator Demo day, Reception

Berkeley Center for Responsible, Decentralized Intelligence

rdi.berkeley.edu/events/decentralizationaisummit

Aug 27, UC Berkeley