CS230: Lecture 10
Class wrap-up
Andrew Ng, Kian Katanforoosh
I. Continuous Career Development
II. Choosing an AI Career
III. What’s next after CS230?
IV. Closing remarks
The rapid progress in AI affects the half-life of skills.

The half-life of skills is 80% shorter than 40 years ago.
How to keep up with the latest and greatest?

Precision Upskilling Cycle

1. **Follow top research and applied scientists on Twitter** to stay apprised of new ML publications or blogs. Beware that you’ll need to sort through the noise. For example, top institutions tend to get more attention than others – it is not always justified. If you’re looking for people to follow, see the lists we follow on Twitter (@AndrewYNg, @kiankatan).

2. **Top ML & DS conferences such as NeurIPS, CVPR, ICLR, ICML, or KDD publish their list of award winning papers.** These are peer-reviewed and have excited multiple people from the community. You’d get less real-time info than on Twitter, but also less noise. It’s also a more academic view. I like to print papers and skim through them (5 min each max) focusing on abstract, methodology, and figures. If I’m interested, I’ll spend more time on the paper.

3. **Reddit** is my favorite place to **discuss ML & DS research papers** or industry innovations. That’s where you can go deeper into your understanding of a new approach by asking questions and scrolling through answers. The point of views are more critical. I recommend the following subreddits: r/MachineLearning, r/datascience, r/deeplearning, r/datasets, r/artificial, r/LanguageTechnology, or r/reinforcementlearning.

Assessments available at [https://skills.workera.ai/for-individuals](https://skills.workera.ai/for-individuals)
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Roles in software teams are better understood than roles in AI teams. AI as a job category is still nascent!
Thus, companies write fuzzy AI job descriptions with confusing titles.
Parents: So, you’re applying to a machine learning job?  
Me: Trying to…

Companies are confused as much as applicants.

Kian Katanforoosh
It makes it difficult for job seekers to apply to the job that’s right for them.

How can applicants find the right role and stand out?
Identify your career pathway and benchmark your skills regularly.
AI is more than modeling.

Figure 1: Only a small fraction of real-world ML systems is composed of the ML code, as shown by the small black box in the middle. The required surrounding infrastructure is vast and complex.

[Source: Sculley et. al, Hidden Technical Debt in Machine Learning Systems]
Like Software, AI is becoming more specialized as a discipline
The \( \pi \)-shape Data Scientist

Core
(Skills with a longer half-life and broad applicability)

Depth in NLP
(Developing deep expertise in an area that have a shorter half-life)
- Deploying transformers
- Evaluating models in NLP tasks
- Pruning & Quantization

Depth in Imaging
(Developing deep expertise in an area that have a shorter half-life)
- Image Data Augmentation
- Convolutional Neural Networks
- Attention-based mechanism

Data Science | Machine Learning | Algorithmic Coding | Mathematics | Business Analytics
AI+X: Develop your AI competency in conjunction with your subject-matter expertise.
Predicting Ionic Liquid Materials Properties from Chemical Structure

Tyler Quill, Shayta Roy and Yaakov Tuchman
Department of Materials Science & Engineering
Stanford University

Learning Power Flow Mappings for Power Grid Simulation

Lily Buechler
Department of Mechanical Engineering
Stanford University

Deep Learning for Local Ancestry Inference

Jan Sokol
Biomedical Informatics Training Program
Stanford University

Matthew Aguirre
Biomedical Informatics Training Program
Stanford University

CADDYIAN - Diver Gesture Language Classification

Veronica Peng
Dept. of Computer Science
Stanford University

Xi Yu
Dept. of Bioengineering
Stanford University

Wenxi Zhao
Dept. of Civil & Env. Engineering
Stanford University

Predicting Parkinson’s disease behavioral state from neural and kinematic data

Marissa Lee, Johanna O’Day, Kirsten Seagers
Department of Computer Science
Stanford University

And many more..
“I’m a Data Scientist, with expertise in Speech”

“I’m a MLE, with expertise in Genomics”

“I’m a Data Analyst, with expertise in Marketing”

“I’m a Software Engineer, with expertise in Manufacturing Automation”
If you’re transitioning to AI, be an AI+X.
It’s also a great time to start a company!

Watch for those:
1. **Market** dynamics / Business opportunity: Funding availability?
2. Tech/**Product**/Defensibility: Proprietary data? Proprietary model?
3. **Team**: Timing?
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What’s next?

Natural Language Processing

**CS 124:** From Languages to Information (LINGUIST 180, LINGUIST 280)
**CS 224N:** Natural Language Processing with Deep Learning (LINGUIST 284)
**CS 224U:** Natural Language Understanding (LINGUIST 188, LINGUIST 288)
**CS 276:** Information Retrieval and Web Search (LINGUIST 286)

Computer Vision

**CS 131:** Computer Vision: Foundations and Applications
**CS 205L:** Continuous Mathematical Methods with an Emphasis on Machine Learning
**CS 231N:** Convolutional Neural Networks for Visual Recognition
**CS 348K:** Visual Computing Systems

Others:

**CS 273B:** Deep Learning in Genomics and Biomedicine (BIODS 237, BIOMEDIN 273B, GENE 236)
**CS 236:** Deep Generative Models
**CS 228:** Probabilistic Graphical Models: Principles and Techniques
**CS 337:** AI-Assisted Care (MED 277)
**CS 229:** Machine Learning (STATS 229)
**CS 129:** Applied Machine Learning
**CS 234:** Reinforcement Learning
**CS 221:** Artificial Intelligence: Principles and Techniques
**CS 217:** Hardware Accelerators for Machine Learning
**CS 329S:** Machine Learning Systems Design

Classes at Stanford

**Al for Healthcare Bootcamp**

**Al for Climate Bootcamp**

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1. You can feel proud. Despite the difficult circumstances, you’ve built a project that you can carry with you after the class.

2. If you enjoyed working on your project, keep developing it after the class.

3. We encourage you to review other students’ projects which will be shared on the CS230 website.

4. Keep in touch. You’re officially a CS230 graduate, and we hope that you’ve built a relationship with your team members or a teaching staff member.