

## MachineLearning-Lecture01

**Instructor (Andrew Ng):** Okay. Good morning. Welcome to CS229, the machine learning class. So what I wanna do today is just spend a little time going over the logistics of the class, and then we'll start to talk a bit about machine learning.

By way of introduction, my name's Andrew Ng and I'll be instructor for this class. And so I personally work in machine learning, and I've worked on it for about 15 years now, and I actually think that machine learning is the most exciting field of all the computer sciences. So I'm actually always excited about teaching this class. Sometimes I actually think that machine learning is not only the most exciting thing in computer science, but the most exciting thing in all of human endeavor, so maybe a little bias there.

I also want to introduce the TAs, who are all graduate students doing research in or related to the machine learning and all aspects of machine learning. Paul Baumstarck works in machine learning and computer vision. Catie Chang is actually a neuroscientist who applies machine learning algorithms to try to understand the human brain. Tom Do is another PhD student, works in computational biology and in sort of the basic fundamentals of human learning. Zico Kolter is the head TA — he's head TA two years in a row now — works in machine learning and applies them to a bunch of robots. And Daniel Ramage is — I guess he's not here — Daniel applies learning algorithms to problems in natural language processing.

So you'll get to know the TAs and me much better throughout this quarter, but just from the sorts of things the TA's do, I hope you can already tell that machine learning is a highly interdisciplinary topic in which just the TAs find learning algorithms to problems in computer vision and biology and robots and language. And machine learning is one of those things that has and is having a large impact on many applications.

So just in my own daily work, I actually frequently end up talking to people like helicopter pilots to biologists to people in computer systems or databases to economists and sort of also an unending stream of people from industry coming to Stanford interested in applying machine learning methods to their own problems.

So yeah, this is fun. A couple of weeks ago, a student actually forwarded to me an article in "Computer World" about the 12 IT skills that employers can't say no to. So it's about sort of the 12 most desirable skills in all of IT and all of information technology, and topping the list was actually machine learning. So I think this is a good time to be learning this stuff and learning algorithms and having a large impact on many segments of science and industry.

I'm actually curious about something. Learning algorithms is one of the things that touches many areas of science and industries, and I'm just kind of curious. How many people here are computer science majors, are in the computer science department? Okay. About half of you. How many people are from EE? Oh, okay, maybe about a fifth. How

many biologists are there here? Wow, just a few, not many. I'm surprised. Anyone from statistics? Okay, a few. So where are the rest of you from?

**Student :** iCME.

**Instructor (Andrew Ng) :** Say again?

**Student :** iCME.

**Instructor (Andrew Ng) :** iCME. Cool.

**Student :** [Inaudible].

**Instructor (Andrew Ng) :** Civi and what else?

**Student :** [Inaudible]

**Instructor (Andrew Ng) :** Synthesis, [inaudible] systems. Yeah, cool.

**Student :** Chemi.

**Instructor (Andrew Ng) :** Chemi. Cool.

**Student :** [Inaudible].

**Instructor (Andrew Ng) :** Aero/astro. Yes, right. Yeah, okay, cool. Anyone else?

**Student :** [Inaudible].

**Instructor (Andrew Ng) :** Pardon? MSNE. All right. Cool. Yeah.

**Student :** [Inaudible].

**Instructor (Andrew Ng) :** Pardon?

**Student :** [Inaudible].

**Instructor (Andrew Ng) :** Endo —

**Student :** [Inaudible].

**Instructor (Andrew Ng) :** Oh, I see, industry. Okay. Cool. Great, great. So as you can tell from a cross-section of this class, I think we're a very diverse audience in this room, and that's one of the things that makes this class fun to teach and fun to be in, I think.