

factual™

Software Engineering and Crucial Career Advice

USC Viterbi School of Engineering W.V.T. Rusch Undergraduate Honors Colloquium

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Thanks for Having Me!

- ▶ Director, Dr. Aluizio Prata
- ▶ Coordinator, Christine Franks
- ▶ Emily Schubert, B.S. Astronautical Engineering
- ▶ Honors students!

Where I'm coming from

- ▶ UCLA, CS&E, 1996
- ▶ Internet-ish companies, mostly small startups
- ▶ Currently an engineer at Factual
- ▶ I'm SUPER biased

- ▶ Engineering stuff
- ▶ Non-engineering stuff

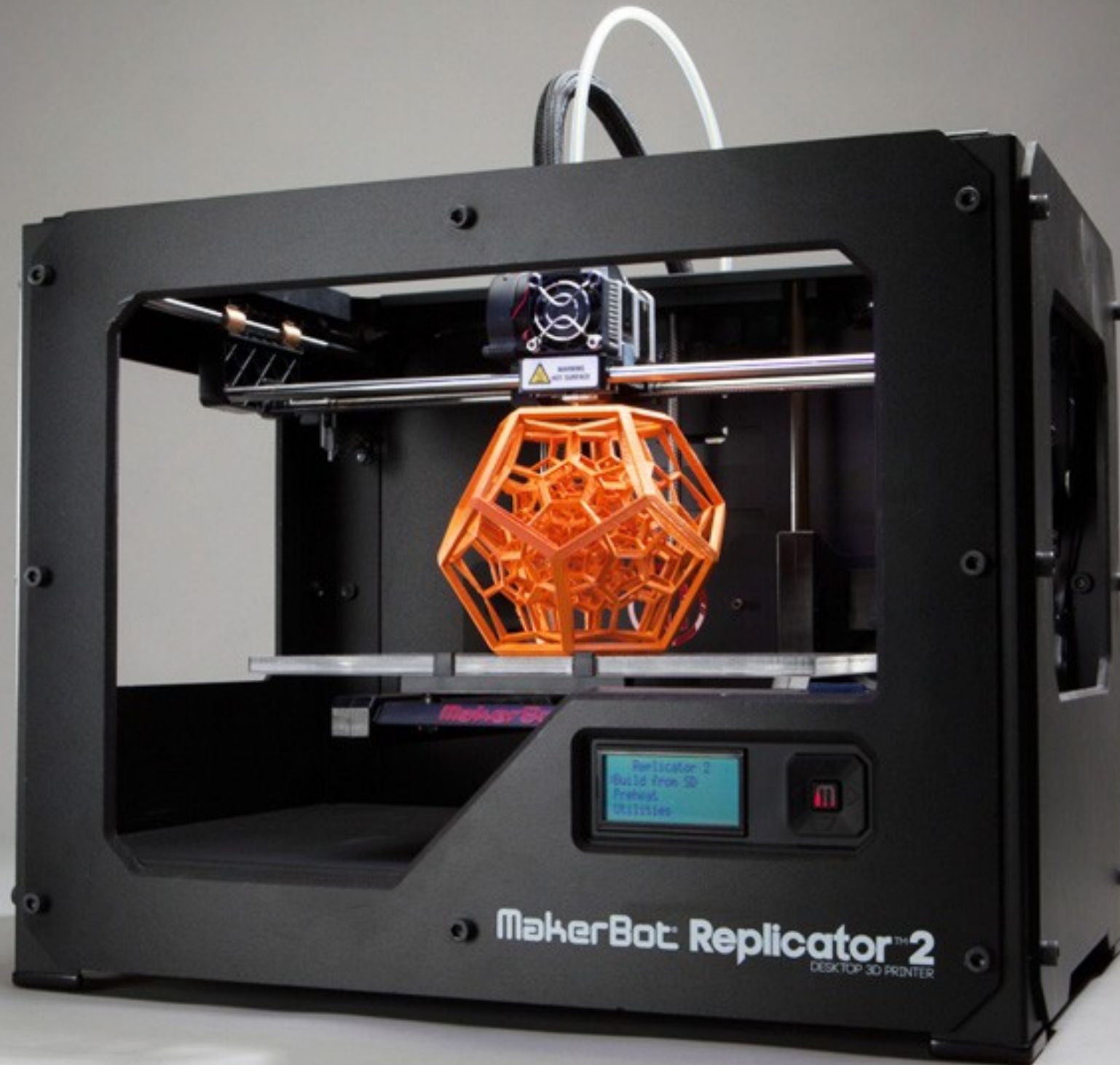
- ▶ Contributed to an “open” project?
- ▶ “Opened” your own project?
- ▶ Played with 3D printing?
- ▶ Played with Arduino?

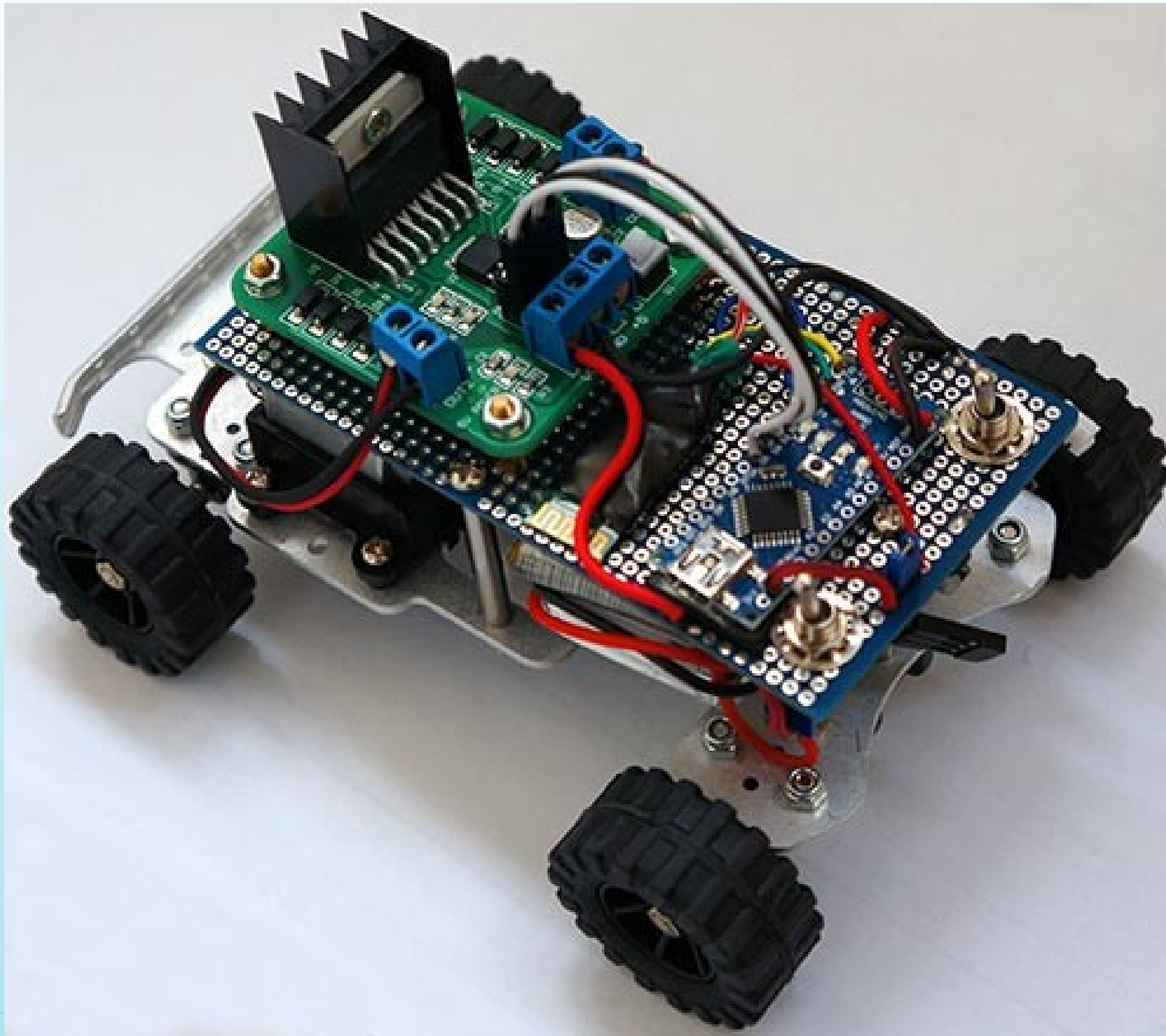
- ▶ Version control your assignments?
- ▶ ... write automated tests?
- ▶ ... keep a service running?
- ▶ ... keep and analyze a log?

Advice: Do a long-term project

Do some fun project(s) on the side and work on it for longer than a school term. A lot of software engineering practices just come naturally once you start having to maintain and modify existing code, rather than hastily coding for a class project/assignment and discarding it afterward.

– Manuel Lagang, Factual Engineer



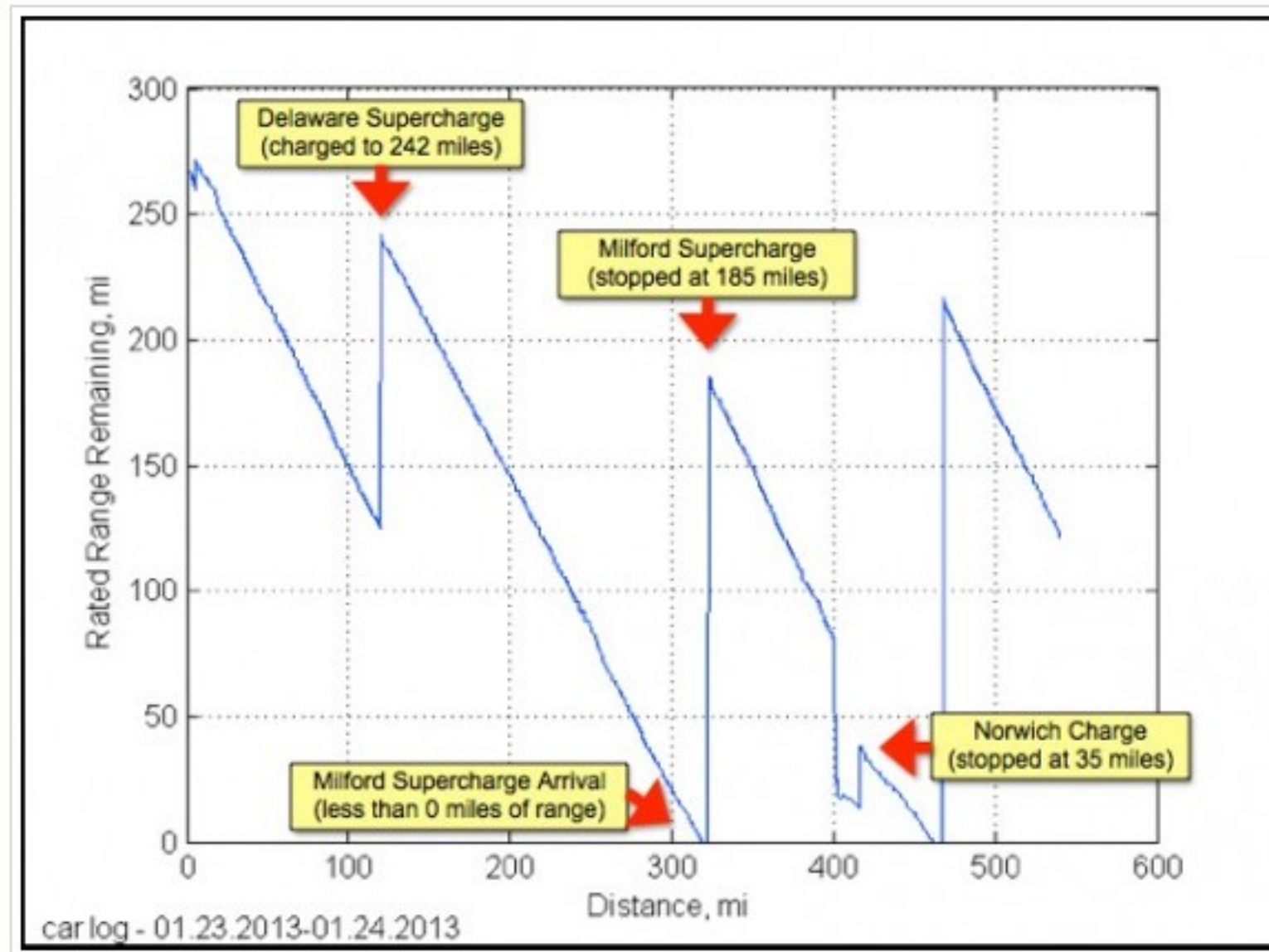


- ▶ Version control and back-up *everything!*
 - Why? Because... *gremlins!*
 - *(do you know where your laptop is?)*
- ▶ Automated tests. Unit, functional, integration, CIE
- ▶ Documentation
 - Sometimes boring. But not to everyone.
- ▶ Log it!
 - Sometimes as important as mainline code

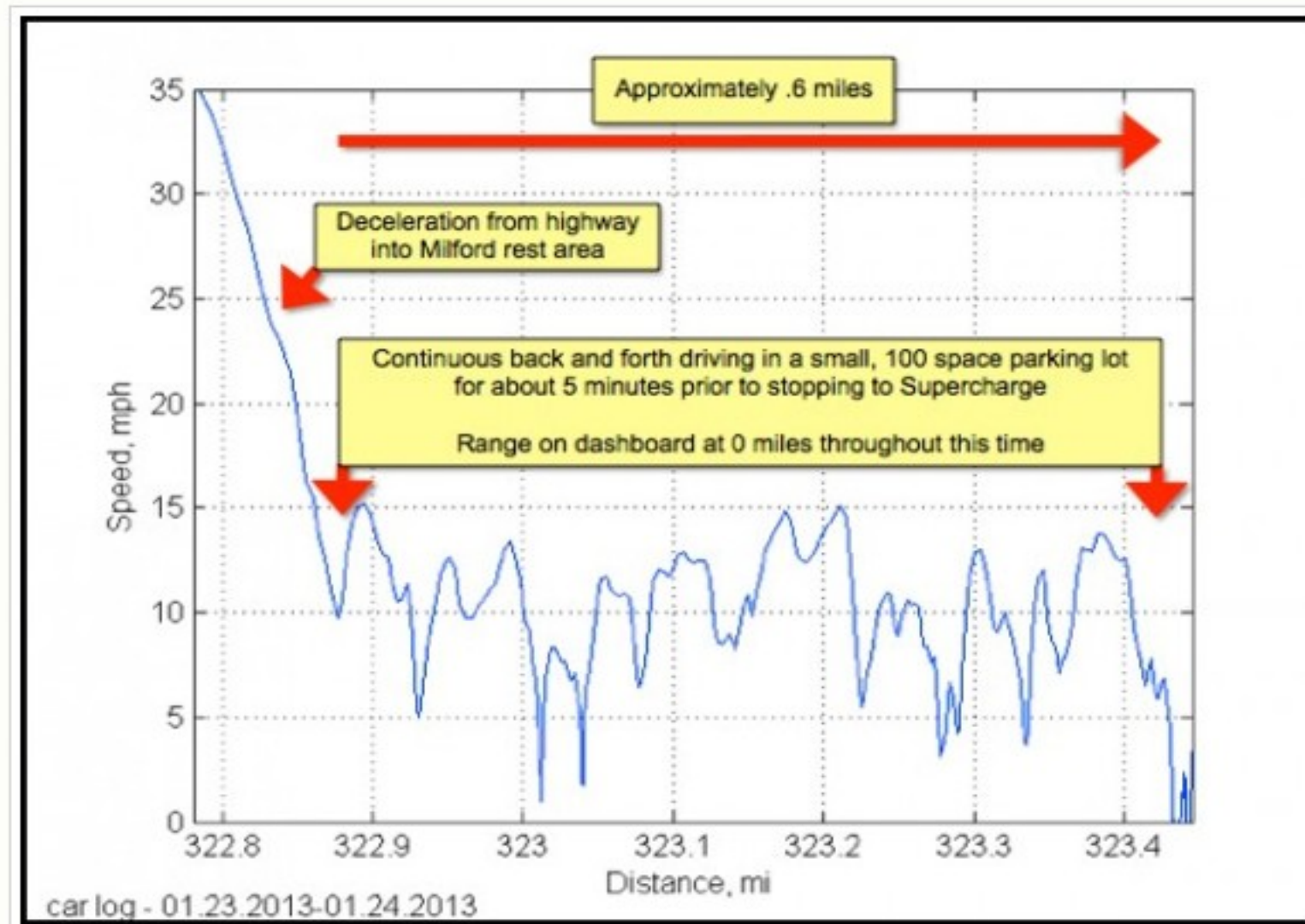
Tesla has torn into the New York Times review of its Model S electric car, using systems logs showing charge and recharge status, driving style, cabin settings and more to undermine claims the EV is unreliable. In a detailed run-down of the stats gathered by the Model S' onboard computer – something Tesla says it always does “carefully” on media drives, after UK car show *Top Gear* made similar reliability claims about a previous model, in a case which ended up in the courtroom - Tesla CEO Elon Musk argues that NYT reviewer John Broder was prejudiced against electric cars from the start, and did as much as possible to portray the Model S as unfit for the road.



Meanwhile, some of Broder's claims about how he tried to minimize power consumption are also challenged. Musk points to the typical speeds driven at – 65 to 85 mph – and the average cabin temperature of 72F for the duration of the test, and the fact that the reviewer also actively turned the heating up when charge was getting low.



Broder is even accused of trying to artificially run down the Model S' battery by more than it would typically, driving "in circles for over half a mile in a tiny, 100-space parking lot" in front of one of Tesla's Supercharger power stations, in what Musk suggests is an attempt to fully drain the car. Tesla also points out the sheer number of charging points – both its own, and those run by other companies – along the length of Broder's drive, as a counterpoint to the number of times the reviewer actually stopped to recharge.



How many...

- ▶ have done an internship?
- ▶ plan to do one?
- ▶ work part-time during school (relevant)?
- ▶ want to start a company?
- ▶ want to join a small startup?
- ▶ want to earn an additional degree?

- ▶ or part-time gigs (if you can manage)
- ▶ sample very different workplace cultures
- ▶ my biggest mistake
- ▶ Factual

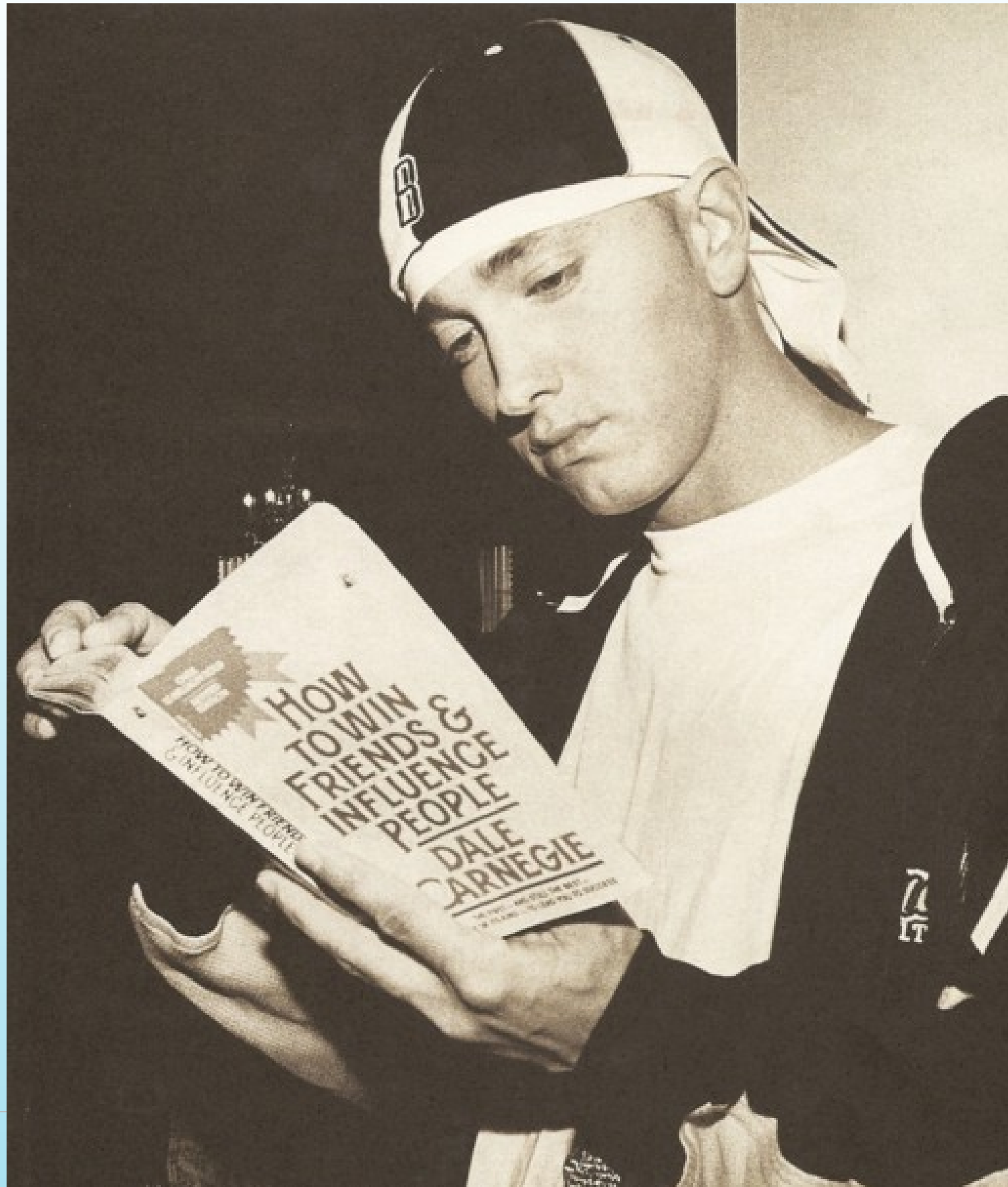
- ▶ Are you “introverted”?
- ▶ Laura: “bunch of Aspergers”
- ▶ yeah, it's a... “stereotype”
- ▶ bucking the trend can really set us apart

Just saying “Hi”...

▶ can be huge.

- ▶ Wasn't until my 2nd job
- ▶ Profound
- ▶ Never too many, never too early

Homework





- ▶ Should you ask for more?
- ▶ What's better, 5,000 or 50,000?
- ▶ Not fair, nor evil. Just how it is.
- ▶ Random friend's casual advice
- ▶ This can all be hacked!

- ▶ Winning Through Intimidation (Robert J. Ringer)
- ▶ Getting More: How to Negotiate to Achieve Your Goals in the Real World (Stuart Diamond)
- ▶ Negotiating Your Salary: How To Make \$1000 a Minute (M.A. Jack Chapman)

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Slides available on my github:
github.com/dirtyvagabond/usc-talk