TED Circles

hosted by TEDx ShuguangLu

我从人工智能中了解到学习的意义

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2021.5.30

有了AI，人类还需要学习吗？

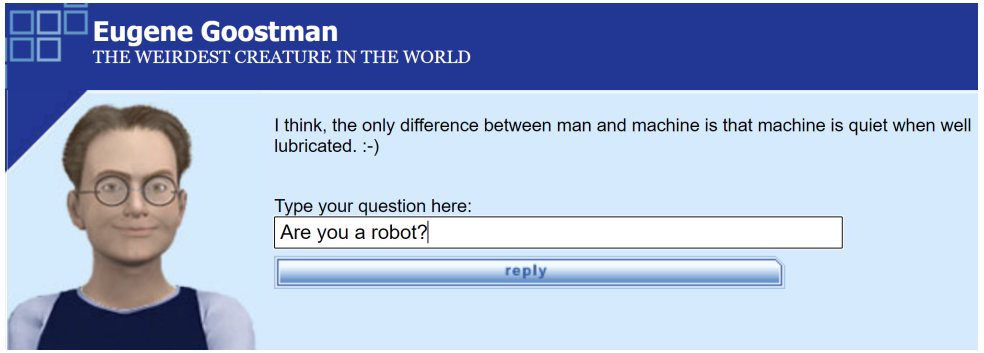
机器人越来越聪明，我们应该担心吗？

- 机器人和AI能做什么？
- 机器人和AI不能做什么？
- 人类学习独特的意义在哪里？

AI会攻击人类文明吗？

机器人会抢走我们的工作吗？

AI会毁灭世界吗？



Title: United Methodists Agree to Historic Split
Subtitle: Those who oppose gay marriage will form their own denomination
Article: After two days of intense debate, the United Methodist Church has agreed to a historic split - one that is expected to end in the creation of a new denomination, one that will be "theologically and socially conservative," according to The Washington Post. The majority of delegates attending the church's annual General Conference in May voted to strengthen a ban on the ordination of LGBTQ clergy and to write new rules that will "discipline" clergy who officiate at same-sex weddings. But those who opposed these measures have a new plan: They say they will form a separate denomination by 2020, calling their church the Christian Methodist denomination.
The Post notes that the denomination, which claims 12.5 million members, was in the early 20th century the "largest Protestant denomination in the U.S.," but that it has been shrinking in recent decades. The new split will be the second in the church's history. The first occurred in 1968, when roughly 10 percent of the denomination left to form the Evangelical United Brethren Church. The Post notes that the proposed split "comes at a critical time for the church, which has been losing members for years," which has been "pushed toward the brink of a schism over the role of LGBTQ people in the church." Gay marriage is not the only issue that has divided the church. In 2016, the denomination was split over ordination of transgender clergy, with the North Pacific regional conference voting to ban them from serving as clergy, and the South Pacific regional conference voting to allow them.

Figure 3.14: The GPT-3 generated news article that humans had the greatest difficulty distinguishing from a human written article (accuracy: 12%).

Table 4. Tested Feynman equations, part 1. Abbreviations in the "Methods used" column: da, dimensional analysis; bf, brute force; pf, polyfit; ev, set two variables equal; sym, symmetry; sep, separability. Suffixes denote the type of symmetry or separability (sym–, translational symmetry; sep*, multiplicative separability; etc.) or the preprocessing before brute force (e.g., bf-inverse means inverting the mystery function before bf).

Feynman Eq.	Equation	Solution Time (s)	Methods Used	Data Needed	Solved By Eureqa	Solved W/o da	Noise Tolerance
I.6.20a	$f = e^{-\theta^2/2}/\sqrt{2\pi}$	16	bf	10	No	Yes	10^{-2}
I.6.20	$f = e^{-\frac{\theta^2}{2\sigma^2}}/\sqrt{2\pi\sigma^2}$	2992	ev, bf-log	10^2	No	Yes	10^{-4}
I.6.20b	$f = e^{-\frac{(\theta-\theta_0)^2}{2\sigma^2}}/\sqrt{2\pi\sigma^2}$	4792	sym–, ev, bf-log	10^3	No	Yes	10^{-4}
I.8.14	$d = \sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$	544	da, pf-squared	10^2	No	Yes	10^{-4}
I.9.18	$F = \frac{Gm_1m_2}{(x_2-x_1)^2+(y_2-y_1)^2+(z_2-z_1)^2}$	5975	da, sym–, sym–, sep*, pf-inv	10^6	No	Yes	10^{-5}
I.10.7	$m = \frac{m_0}{\sqrt{1-\frac{v^2}{c^2}}}$	14	da, bf	10	No	Yes	10^{-4}
I.11.19	$A = x_1y_1 + x_2y_2 + x_3y_3$	184	da, pf	10^2	Yes	Yes	10^{-3}
I.12.1	$F = \mu N_n$	12	da, bf	10	Yes	Yes	10^{-3}
I.12.2	$F = \frac{q_1q_2}{4\pi\epsilon r^2}$	17	da, bf	10	Yes	Yes	10^{-2}
I.12.4	$E_f = \frac{q_1}{4\pi\epsilon r^2}$	12	da	10	Yes	Yes	10^{-2}
I.12.5	$F = q_2E_f$	8	da	10	Yes	Yes	10^{-2}
I.12.11	$F = q(E_f + Bv\sin\theta)$	19	da, bf	10	Yes	Yes	10^{-3}
I.13.4	$K = \frac{1}{2}m(v^2+u^2+w^2)$	22	da, bf	10	Yes	Yes	10^{-4}
I.13.12	$U = Gm_1m_2\left(\frac{1}{r_2}-\frac{1}{r_1}\right)$	20	da, bf	10	Yes	Yes	10^{-4}
I.14.3	$U = mgz$	12	da	10	Yes	Yes	10^{-2}
I.14.4	$U = \frac{k_{spring}x^2}{2}$	9	da	10	Yes	Yes	10^{-2}
I.15.3x	$x_1 = \frac{x-ut}{\sqrt{1-u^2/c^2}}$	22	da, bf	10	No	No	10^{-3}
I.15.3t	$t_1 = \frac{t-ux/c^2}{\sqrt{1-u^2/c^2}}$	20	da, bf	10^2	No	No	10^{-4}
I.15.10	$p = \frac{m_0v}{\sqrt{1-v^2/c^2}}$	13	da, bf	10	No	Yes	10^{-4}
I.16.6	$v_1 = \frac{u+v}{1+uv/c^2}$	18	da, bf	10	No	Yes	10^{-3}
I.18.4	$r = \frac{m_1r_1+m_2r_2}{m_1+m_2}$	17	da, bf	10	Yes	Yes	10^{-2}
I.18.12	$\tau = rF\sin\theta$	15	da, bf	10	Yes	Yes	10^{-3}
I.18.16	$L = mrv\sin\theta$	17	da, bf	10	Yes	Yes	10^{-3}
I.24.6	$E = \frac{1}{4}m(\omega^2+\omega_0^2)x^2$	22	da, bf	10	Yes	Yes	10^{-4}
I.25.13	$V_e = \frac{q}{C}$	10	da	10	Yes	Yes	10^{-2}

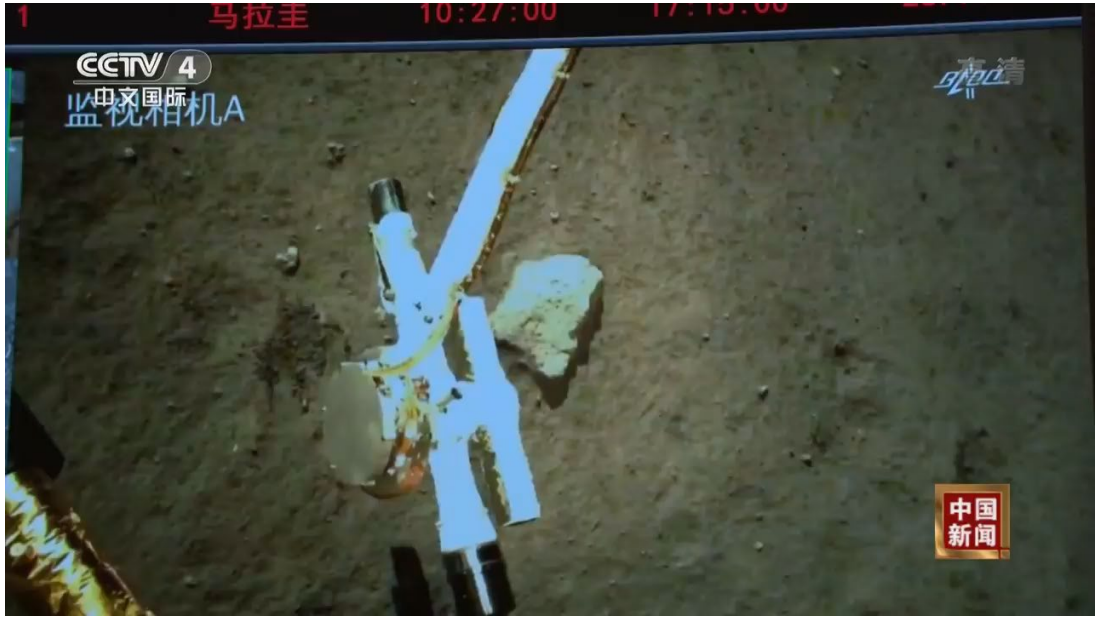
AI 击败人类顶级棋手

AI 像人一样
聊天和写文章

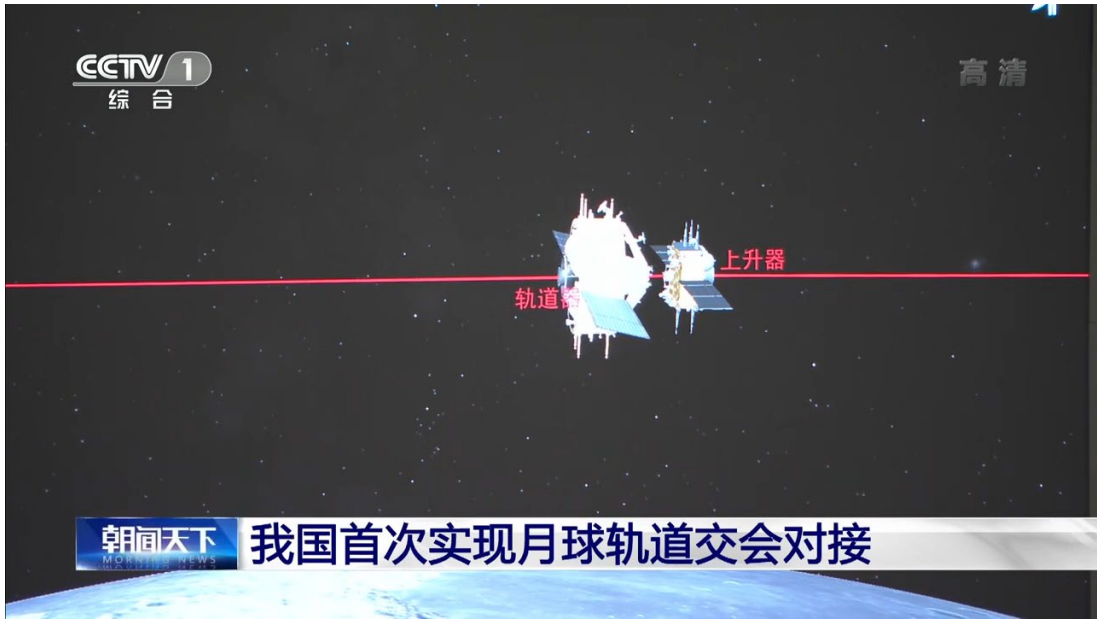
AI Feynman
总结物理表达式

真实世界：不确定，多变，不可预测

天问一号着陆
恐怖8分钟



嫦娥5号
月面采样



月球轨道
交会对接、
样品转移

天宫号
空间站
机械臂

空间探索：机器人独立完成一系列精细、复杂操作

几个机械臂协作钻一些列孔眼

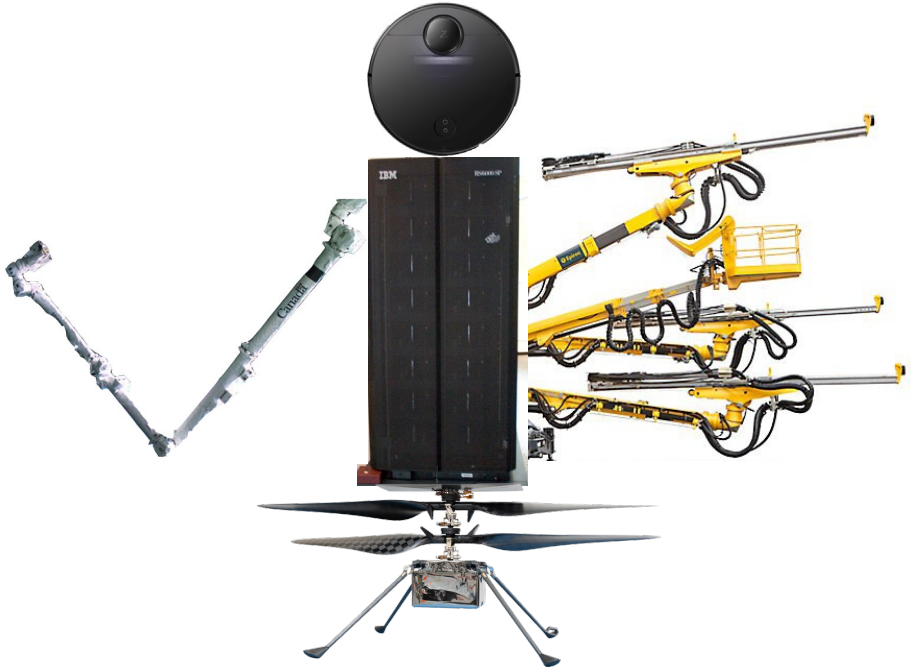
Epiroc

多机械臂协作技术实验

S. Zhang, F. Pecora
Multi-Robot Planning and Control Lab
Örebro University

地下采矿：不确定环境下的多机械臂自主协作

弱人工智能
Narrow AI



通用人工智能
AGI (Artificial General Intelligence)

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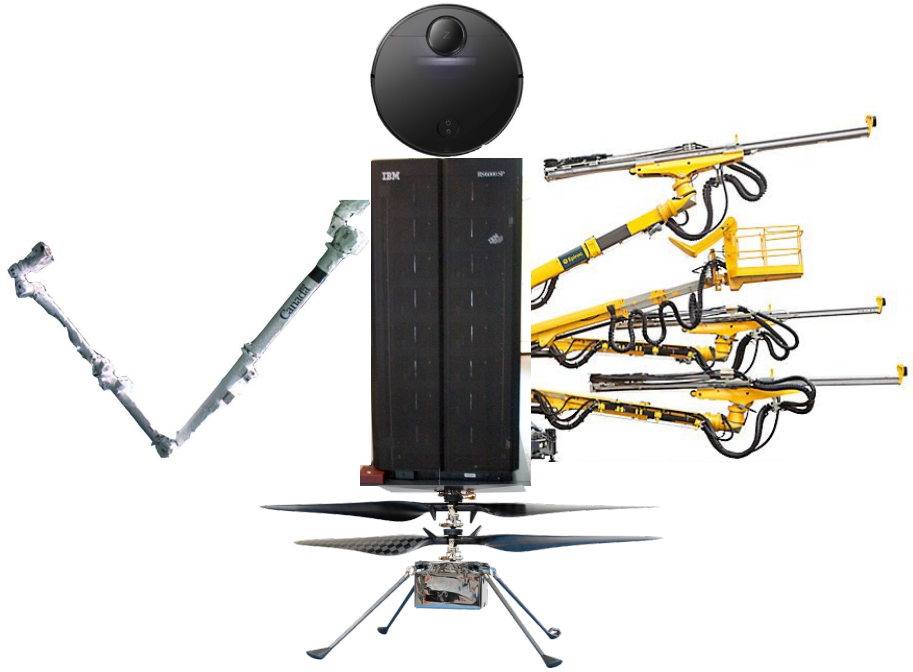
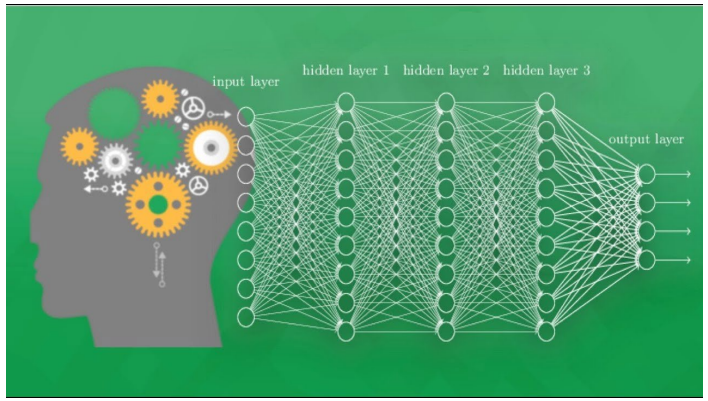
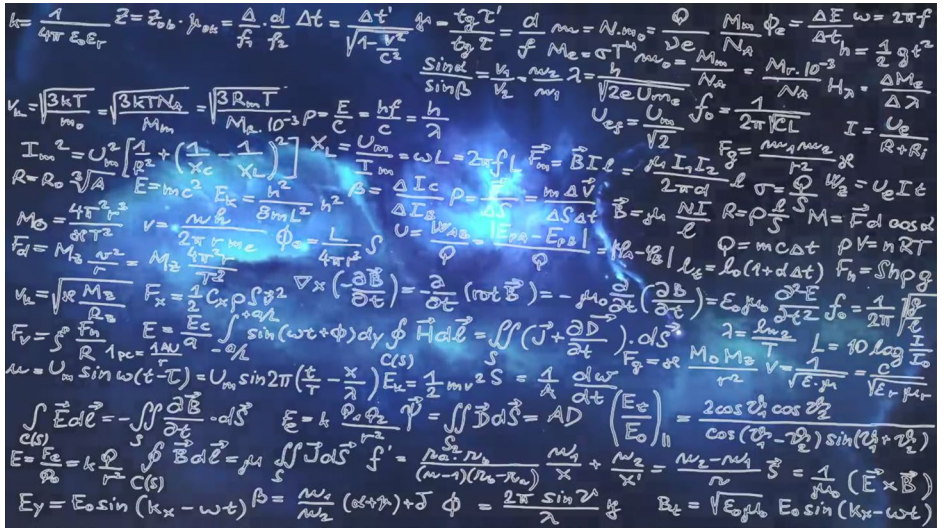


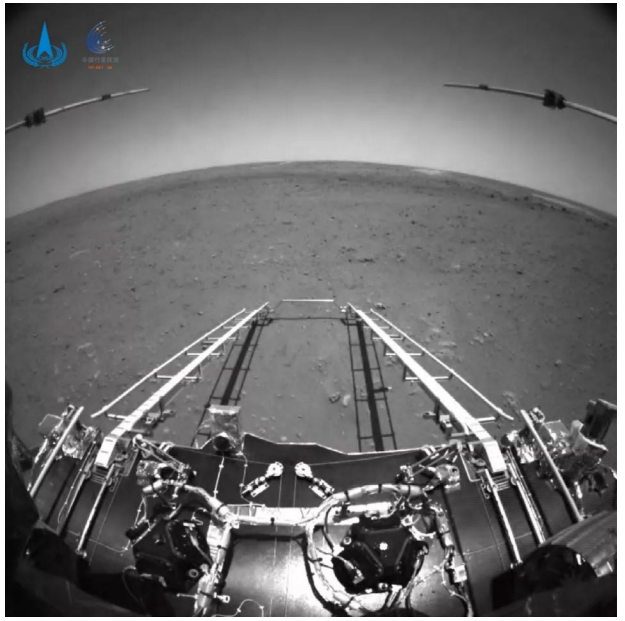


精巧的算法

大量数据

充足的计算资源





人类学习的意义？

提出伟大的问题

感激、欣赏真理与美

遂古之初，谁传道之？
上下未形，何由考之？
——《天问》

谢谢!