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Sam Rodrigues: What we'll learn about the brain in the next century | TED Talk

https://www.ted.com/talks/sam_rodrigues_what_we_ll_learn_about_the_brain_in_the_next_century

Advanced Words Only

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Session 1: Word List

neuroscience

n. the scientific study of the function, structure, and disorder of the brain and the nervous system

(1) the branch of **neuroscience**, (2) a theoretical concept in **neuroscience**

Our university is famous for its professors, who are well-versed in behavioral **neuroscience**.

physicist

n. a scientist who specializes in the field of physics

(1) talented **physicist**, (2) theoretical **physicist**

Einstein was an outstanding and famous **physicist** of the 20th century.

motto

n. a phrase or slogan that expresses a guiding principle or goal

synonym : slogan, catchphrase, phrase

(1) the **motto** for safe traffic, (2) company **motto**

The company's **motto** is "Innovation and Service," which is reflected in its products and customer support.

neuron

n. a cell that is specialized to carry information within the brain and between the brain and other parts of the body

synonym : nerve cell

(1) excite the **neurons**, (2) **neuron** cell body

Our body transfers information along each **neuron** using an electrical impulse.

MRI

n. (abbreviation for magnetic resonance imaging) a medical imaging technique that uses a strong magnetic field and radio waves to produce detailed images of the inside of the body

(1) **MRI** brain image, (2) cardiac **MRI**

The **MRI** machine uses powerful magnets to produce detailed images of the inside of the body.

electroencephalography. (also "EEG") a diagnostic medical procedure that involves the use of electrodes placed on the scalp to measure and record the electrical activity of the brain often used to assess and diagnose various neurological conditions

synonym : brain wave test, EEG, neural scan

(1) **electroencephalography** test, (2) abnormal **electroencephalography**

She is an **electroencephalography** technician skilled in performing EEG tests on patients.

slosh

v. to move the liquid around, usually inside a container, with a splashing or slapping sound; to move clumsily through water or mud

synonym : splash, swish, slop

(1) **slosh** through the mud, (2) **slosh** a drink

The water **sloshed** over the edge of the bucket and spilled onto the floor.

pervasive

adj. spreading or existing throughout every part of a thing or place

synonym : extensive, ubiquitous, prevalent

(1) **pervasive** language, (2) the **pervasive** odor of garlic

Suspicion and worry were **pervasive** in our minds.

preface

n. an introduction or preliminary statement, particularly to a book or other written work, that provides context or sets out the author's purpose or perspective

synonym : introduction, preamble, prologue

(1) **preface** page, (2) book **preface**

The author wrote a powerful **preface** explaining their motivation for writing the book.

robotic

adj. of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots

synonym : automated, mechanical, laborsaving

(1) **robotic** arm, (2) **robotic** guide operation

The surgeon removed the tumor using **robotic** video assistance.

recognizable

adj. easy to become aware of or identify

synonym : noticeable, perceptible, definite

(1) to a **recognizable** degree, (2) **recognizable** landmark

His car was easily **recognizable** in the parking lot.

Alzheimer

n. a neurodegenerative disease that causes memory loss, cognitive decline, and behavioral issues; is the most common cause of dementia in older adults

synonym : dementia, memory loss, cognitive decline

(1) **Alzheimer's** brain, (2) **Alzheimer's** risk factors

My grandmother has **Alzheimer's** disease requires special care and attention from her caregivers.

degenerate

v. (of a person, animal, or plant) to become worse in health or physical condition

synonym : deteriorate, decline, decay

(1) **degenerate** into a disagreement, (2) **degenerate** into recession

The once-thriving city has **degenerated** into a crime-ridden slum.

pierce

v. to cut or make a way through with a sharp instrument
synonym: jab, penetrate, stab

(1) **pierce** the armored shells, (2) **pierce** a mystery
The extreme cold **pierced** our bones.

microscopic

adj. tiny; exceedingly precise and detail-oriented; of or used in microscopy

synonym: infinitesimal, tiny, atomic

(1) **microscopic** inquiry, (2) **microscopic** analysis
Inspectors noticed **microscopic** cracks in the submarine's hull.

hindsight

n. understanding or knowledge that comes after an event has occurred; the ability to perceive or understand events with greater clarity or accuracy in retrospect

synonym: retrospect, afterthought

(1) **hindsight** bias, (2) 20/20 **hindsight**
With **hindsight**, we can see that investing in that company was a mistake.

skeptical

adj. doubting that something is accurate or useful

synonym: doubtful, distrustful, suspicious

(1) a **skeptical** attitude, (2) **skeptical** scientists
His religious and philosophical beliefs were utterly **skeptical**.

visionary

adj. having or showing exceptional foresight and imagination; not practical or realizable; speculative

synonym: prophetic, far-sighted, imaginative

(1) **visionary** business, (2) **visionary** ideas
The **visionary** leader had a clear plan for the company's future.

deregulation

n. the process of reducing or removing government regulations and restrictions in a particular industry or sector, often to promote competition and reduce costs

synonym: liberalization

(1) **deregulation** of the economy, (2) aviation **deregulation**

The government's **deregulation** of the telecommunications industry led to increased competition.

explode

v. to burst or break open violently and noisily; to cause something to burst or break open

synonym: detonate, blast, rupture

(1) **explode** in anger, (2) **explode** in popularity

The old building **exploded** in a fiery inferno.

typo

n. a mistake made in typing or the reproduction of a text

synonym: error, mistake, misprint

(1) full of **typos**, (2) **typo-free** resume

I noticed a **typo** in the company's annual report, stating the wrong profit margin.

dorsal

adj. located on the back, particularly the upper surface of an animal's body; related to or pertaining to the back

synonym: abaxial, spinal, back

(1) **dorsal** surface, (2) **dorsal** root

The shark's **dorsal** fin is a distinguishing feature.

prefrontal

adj. in or about the foremost part of the frontal lobe of the brain

(1) **prefrontal** bone, (2) **prefrontal** region

Research shows that damage to the **prefrontal** cortex leads to increased aggression.

reorganize

v. to change to a more sufficient or suitable form of organization

synonym: rearrange, reconstruct, reshuffle

(1) **reorganize** a department, (2) **reorganize** his debts

The new CEO was appointed to **reorganize** their business.

medicinal

adj. of or relating to the treatment or cure of disease

synonym: curative, therapeutic, healing

(1) **medicinal** chemistry, (2) traditional **medicinal**

The **medicinal** properties of this herb have been known to help with various ailments.

retrospect

n. a review or analysis of past events, particularly to gain insight or understanding; a consideration of something that has already occurred or been accomplished

synonym : review, hindsight, contemplation

(1) **retrospect** review, (2) with hindsight **retrospect**

In **retrospect**, I wish I had made a different decision.

amphetamine

n. a synthetic stimulant drug that affects the central nervous system, typically prescribed to treat conditions such as attention deficit hyperactivity disorder (ADHD) and narcolepsy, known to increase alertness, focus, and energy levels

synonym : stimulant, upper, speed

(1) **amphetamine** addiction, (2) **amphetamine-based** medication

The abuse of **amphetamine** can have serious and long-lasting health effects.

schizophrenia

n. a severe mental disorder in which a person has a distorted view of reality and may experience hallucinations, delusions, and disordered thinking and behavior

synonym : psychosis, disorder, mental illness

(1) **schizophrenia** spectrum disorder, (2) **schizophrenia** treatment

The **schizophrenia** patient was experiencing severe auditory hallucinations.

satirical

adj. characterized by the use of criticism that ridicules human folly, vices, or weaknesses through humor, irony, or sarcasm

synonym : mocking, ironic, sarcastic

(1) **satirical** article, (2) **satirical** humor

The **satirical** cartoon poked fun at the politicians in a clever

way.

dedicate

v. to give all of your energy, time, etc., entirely to a specific person, activity, or cause; to set apart for a particular purpose or use

synonym: consecrate, devote, commit

(1) **dedicate** a few hours, (2) **dedicate** a chapter to the subject

He **dedicated** his life to helping others.

Session 2: Spelling

1. hi_____ht bias *n.* understanding or knowledge that comes after an event has occurred; the ability to perceive or understand events with greater clarity or accuracy in retrospect
2. sch_____nia spectrum disorder *n.* a severe mental disorder in which a person has a distorted view of reality and may experience hallucinations, delusions, and disordered thinking and behavior
3. theoretical ph_____st *n.* a scientist who specializes in the field of physics
4. the branch of neu_____nce *n.* the scientific study of the function, structure, and disorder of the brain and the nervous system
5. pi___e a mystery *v.* to cut or make a way through with a sharp instrument
6. sch_____nia treatment *n.* a severe mental disorder in which a person has a distorted view of reality and may experience hallucinations, delusions, and disordered thinking and behavior
7. 20/20 hi_____ht *n.* understanding or knowledge that comes after an event has occurred; the ability to perceive or understand events with greater clarity or accuracy in retrospect
8. ro_____c arm *adj.* of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots

ANSWERS: 1. hindsight, 2. schizophrenia, 3. physicist, 4. neuroscience, 5. pierce, 6. schizophrenia, 7. hindsight, 8. robotic

9. pe_____ve language *adj.* spreading or existing throughout every part of a thing or place
10. talented ph_____st *n.* a scientist who specializes in the field of physics
11. de_____te a chapter to the subject *v.* to give all of your energy, time, etc., entirely to a specific person, activity, or cause; to set apart for a particular purpose or use
12. M_I brain image *n.* (abbreviation for magnetic resonance imaging) a medical imaging technique that uses a strong magnetic field and radio waves to produce detailed images of the inside of the body
13. book pr_____e *n.* an introduction or preliminary statement, particularly to a book or other written work, that provides context or sets out the author's purpose or perspective
14. a theoretical concept in neu_____nce *n.* the scientific study of the function, structure, and disorder of the brain and the nervous system
15. to a rec_____ble degree *adj.* easy to become aware of or identify
16. reo_____ze a department *v.* to change to a more sufficient or suitable form of organization
17. sa_____al humor *adj.* characterized by the use of criticism that ridicules human folly, vices, or weaknesses through humor, irony, or sarcasm
18. Al_____er's risk factors *n.* a neurodegenerative disease that causes memory loss, cognitive decline, and behavioral issues; is the most common cause of dementia in older adults

ANSWERS: 9. pervasive, 10. physicist, 11. dedicate, 12. MRI, 13. preface, 14. neuroscience, 15. recognizable, 16. reorganize, 17. satirical, 18. Alzheimer

19. ex_____e in anger *v.* to burst or break open violently and noisily; to cause something to burst or break open
20. mic_____ic inquiry *adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy
21. amp_____ne addiction *n.* a synthetic stimulant drug that affects the central nervous system, typically prescribed to treat conditions such as attention deficit hyperactivity disorder (ADHD) and narcolepsy, known to increase alertness, focus, and energy levels
22. abnormal
ele_____phy *n.* (also "EEG") a diagnostic medical procedure that involves the use of electrodes placed on the scalp to measure and record the electrical activity of the brain often used to assess and diagnose various neurological conditions
23. the pe_____ve odor of garlic *adj.* spreading or existing throughout every part of a thing or place
24. excite the ne_____ns *n.* a cell that is specialized to carry information within the brain and between the brain and other parts of the body
25. do_____l surface *adj.* located on the back, particularly the upper surface of an animal's body; related to or pertaining to the back
26. ne_____n cell body *n.* a cell that is specialized to carry information within the brain and between the brain and other parts of the body

ANSWERS: 19. explode, 20. microscopic, 21. amphetamine, 22. electroencephalography, 23. pervasive, 24. neuron, 25. dorsal, 26. neuron

27. me_____al chemistry *adj.* of or relating to the treatment or cure of disease
28. reo_____ze his debts *v.* to change to a more sufficient or suitable form of organization
29. deg_____te into a disagreement *v.* (of a person, animal, or plant) to become worse in health or physical condition
30. with hindsight ret_____ct *n.* a review or analysis of past events, particularly to gain insight or understanding; a consideration of something that has already occurred or been accomplished
31. de_____te a few hours *v.* to give all of your energy, time, etc., entirely to a specific person, activity, or cause; to set apart for a particular purpose or use
32. pr_____e page *n.* an introduction or preliminary statement, particularly to a book or other written work, that provides context or sets out the author's purpose or perspective
33. ele_____phy test *n.* (also "EEG") a diagnostic medical procedure that involves the use of electrodes placed on the scalp to measure and record the electrical activity of the brain often used to assess and diagnose various neurological conditions
34. a sk_____al attitude *adj.* doubting that something is accurate or useful

ANSWERS: 27. medicinal, 28. reorganize, 29. degenerate, 30. retrospect, 31. dedicate, 32. preface, 33. electroencephalography, 34. skeptical

35. vi_____ry business *adj.* having or showing exceptional foresight and imagination; not practical or realizable; speculative
36. traditional me_____al *adj.* of or relating to the treatment or cure of disease
37. do____l root *adj.* located on the back, particularly the upper surface of an animal's body; related to or pertaining to the back
38. pre_____al bone *adj.* in or about the foremost part of the frontal lobe of the brain
39. pi____e the armored shells *v.* to cut or make a way through with a sharp instrument
40. ro_____c guide operation *adj.* of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots
41. the mo__o for safe traffic *n.* a phrase or slogan that expresses a guiding principle or goal
42. aviation der_____ion *n.* the process of reducing or removing government regulations and restrictions in a particular industry or sector, often to promote competition and reduce costs
43. vi_____ry ideas *adj.* having or showing exceptional foresight and imagination; not practical or realizable; speculative
44. Al_____er's brain *n.* a neurodegenerative disease that causes memory loss, cognitive decline, and behavioral issues; is the most common cause of dementia in older adults

ANSWERS: 35. visionary, 36. medicinal, 37. dorsal, 38. prefrontal, 39. pierce, 40. robotic, 41. motto, 42. deregulation, 43. visionary, 44. Alzheimer

45. ret_____ct review *n.* a review or analysis of past events, particularly to gain insight or understanding; a consideration of something that has already occurred or been accomplished
46. rec_____ble landmark *adj.* easy to become aware of or identify
47. company mo__o *n.* a phrase or slogan that expresses a guiding principle or goal
48. mic_____ic analysis *adj.* tiny; exceedingly precise and detail-oriented; of or used in microscopy
49. full of t__os *n.* a mistake made in typing or the reproduction of a text
50. cardiac M_l *n.* (abbreviation for magnetic resonance imaging) a medical imaging technique that uses a strong magnetic field and radio waves to produce detailed images of the inside of the body
51. sa_____al article *adj.* characterized by the use of criticism that ridicules human folly, vices, or weaknesses through humor, irony, or sarcasm
52. pre_____al region *adj.* in or about the foremost part of the frontal lobe of the brain
53. amp_____ne-based medication *n.* a synthetic stimulant drug that affects the central nervous system, typically prescribed to treat conditions such as attention deficit hyperactivity disorder (ADHD) and narcolepsy, known to increase alertness, focus, and energy levels

ANSWERS: 45. retrospect, 46. recognizable, 47. motto, 48. microscopic, 49. typo, 50. MRI, 51. satirical, 52. prefrontal, 53. amphetamine

54. der_____ion of the economy *n.* the process of reducing or removing government regulations and restrictions in a particular industry or sector, often to promote competition and reduce costs
55. t__o-free resume *n.* a mistake made in typing or the reproduction of a text
56. deg_____te into recession *v.* (of a person, animal, or plant) to become worse in health or physical condition
57. sl__h a drink *v.* to move the liquid around, usually inside a container, with a splashing or slapping sound; to move clumsily through water or mud
58. sk_____al scientists *adj.* doubting that something is accurate or useful
59. ex_____e in popularity *v.* to burst or break open violently and noisily; to cause something to burst or break open
60. sl__h through the mud *v.* to move the liquid around, usually inside a container, with a splashing or slapping sound; to move clumsily through water or mud

ANSWERS: 54. deregulation, 55. typo, 56. degenerate, 57. slosh, 58. skeptical, 59. explode, 60. slosh

Session 3: Fill in the Blanks

1. The _____ patient was experiencing severe auditory hallucinations.
n. a severe mental disorder in which a person has a distorted view of reality and may experience hallucinations, delusions, and disordered thinking and behavior
2. The author wrote a powerful _____ explaining their motivation for writing the book.
n. an introduction or preliminary statement, particularly to a book or other written work, that provides context or sets out the author's purpose or perspective
3. His car was easily _____ in the parking lot.
adj. easy to become aware of or identify
4. Research shows that damage to the _____ cortex leads to increased aggression.
adj. in or about the foremost part of the frontal lobe of the brain
5. With _____ we can see that investing in that company was a mistake.
n. understanding or knowledge that comes after an event has occurred; the ability to perceive or understand events with greater clarity or accuracy in retrospect
6. His religious and philosophical beliefs were utterly _____.
adj. doubting that something is accurate or useful
7. The abuse of _____ can have serious and long-lasting health effects.
n. a synthetic stimulant drug that affects the central nervous system, typically prescribed to treat conditions such as attention deficit hyperactivity disorder (ADHD) and narcolepsy, known to increase alertness, focus, and energy levels

ANSWERS: 1. schizophrenia, 2. preface, 3. recognizable, 4. prefrontal, 5. hindsight, 6. skeptical, 7. amphetamine

8. The new CEO was appointed to _____ their business.
v. to change to a more sufficient or suitable form of organization
9. The ____ machine uses powerful magnets to produce detailed images of the inside of the body.
n. (abbreviation for magnetic resonance imaging) a medical imaging technique that uses a strong magnetic field and radio waves to produce detailed images of the inside of the body
10. In _____ I wish I had made a different decision.
n. a review or analysis of past events, particularly to gain insight or understanding; a consideration of something that has already occurred or been accomplished
11. The extreme cold _____ our bones.
v. to cut or make a way through with a sharp instrument
12. The company's _____ is "Innovation and Service," which is reflected in its products and customer support.
n. a phrase or slogan that expresses a guiding principle or goal
13. Suspicion and worry were _____ in our minds.
adj. spreading or existing throughout every part of a thing or place
14. The _____ cartoon poked fun at the politicians in a clever way.
adj. characterized by the use of criticism that ridicules human folly, vices, or weaknesses through humor, irony, or sarcasm
15. I noticed a _____ in the company's annual report, stating the wrong profit margin.
n. a mistake made in typing or the reproduction of a text

ANSWERS: 8. reorganize, 9. MRI, 10. retrospect, 11. pierced, 12. motto, 13. pervasive, 14. satirical, 15. typo

16. The shark's _____ fin is a distinguishing feature.

adj. located on the back, particularly the upper surface of an animal's body; related to or pertaining to the back

17. She is an _____ technician skilled in performing EEG tests on patients.

n. (also "EEG") a diagnostic medical procedure that involves the use of electrodes placed on the scalp to measure and record the electrical activity of the brain often used to assess and diagnose various neurological conditions

18. The water _____ over the edge of the bucket and spilled onto the floor.

v. to move the liquid around, usually inside a container, with a splashing or slapping sound; to move clumsily through water or mud

19. He _____ his life to helping others.

v. to give all of your energy, time, etc., entirely to a specific person, activity, or cause; to set apart for a particular purpose or use

20. The surgeon removed the tumor using _____ video assistance.

adj. of or relating to mechanical robots; (robotics) the interdisciplinary branch of computer science and engineering with the practical use of robots

21. Our body transfers information along each _____ using an electrical impulse.

n. a cell that is specialized to carry information within the brain and between the brain and other parts of the body

22. Einstein was an outstanding and famous _____ of the 20th century.

n. a scientist who specializes in the field of physics

23. My grandmother has _____ disease requires special care and attention from her caregivers.

n. a neurodegenerative disease that causes memory loss, cognitive decline, and behavioral issues; is the most common cause of dementia in older adults

ANSWERS: 16. dorsal, 17. electroencephalography, 18. sloshed, 19. dedicated, 20. robotic, 21. neuron, 22. physicist, 23. Alzheimer's

24. The _____ properties of this herb have been known to help with various ailments.
adj. of or relating to the treatment or cure of disease
25. Inspectors noticed _____ cracks in the submarine's hull.
adj. tiny; exceedingly precise and detail-oriented; of or used in microscopy
26. Our university is famous for its professors, who are well-versed in behavioral _____.
n. the scientific study of the function, structure, and disorder of the brain and the nervous system
27. The _____ leader had a clear plan for the company's future.
adj. having or showing exceptional foresight and imagination; not practical or realizable; speculative
28. The old building _____ in a fiery inferno.
v. to burst or break open violently and noisily; to cause something to burst or break open
29. The once-thriving city has _____ into a crime-ridden slum.
v. (of a person, animal, or plant) to become worse in health or physical condition
30. The government's _____ of the telecommunications industry led to increased competition.
n. the process of reducing or removing government regulations and restrictions in a particular industry or sector, often to promote competition and reduce costs

ANSWERS: 24. medicinal, 25. microscopic, 26. neuroscience, 27. visionary, 28. exploded, 29. degenerated, 30. deregulation