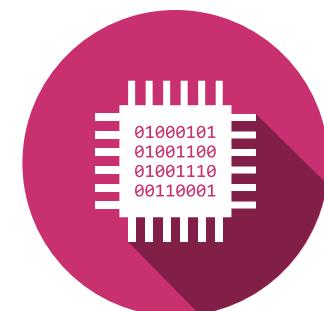




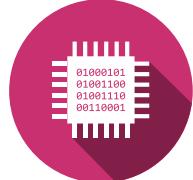
Conception numérique (DiD) Introduction IND

Filière Systèmes industriels
Filière Energie et techniques environnementales
Filière Informatique et systèmes de communications

Silvan Zahno silvan.zahno@hevs.ch
Christophe Bianchi christophe.bianchi@hevs.ch
François Corthay francois.corthay@hevs.ch



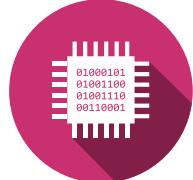
Modules 1^{ière} année



<https://www.hevs.ch/de/hochschule/hochschule-fur-ingenieurwissenschaften/systemtechnik/plan-etude-plein-temps/>

- Bases générales (BaG)
 - Allemand / Französisch (La1)
- Bases métier (BaM)
 - Electricité (2131_Ele)
 - Electricité analogique (ElA)
 - **Electricité numérique (ElN)**
 - Méchanique 1 (2132_Mec1)
- Summer school 1 (214_SS1)
 - Kart
- Bases scientifiques & bases ingénieur (Bal)
 - Mathématiques 1 (241_Mat1)
 - Informatique 1 (2122_Inf1)
 - Physique 1 (2123_Phys1)

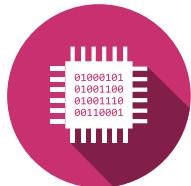
But du cours



Interpréter le cahier des charges d'un *système numérique simple* et concevoir le circuit qui en réalise la fonction

- Donc:
 - Bases méthodologiques: début de semestre
 - Système simple: fin de semestre

Contenu du cours



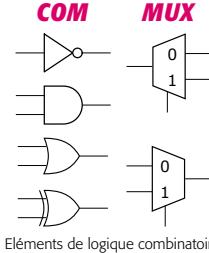
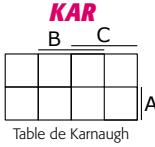
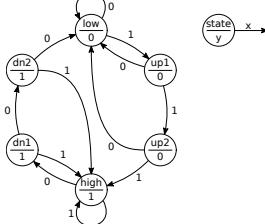
NUM
11110101
Binary dig IT

a	b	y
0	0	0
0	1	1
1	0	1
1	1	0

Table de vérité

Q_A	Q_B	Q_A^+	Q_B^+
0	0	1	0
0	1	0	0
1	0	1	1
1	1	0	1

Table d'état

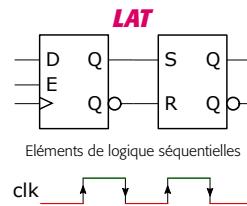


$y = a(b + c) = ab + ac$

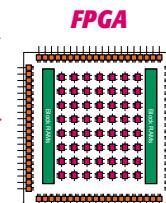
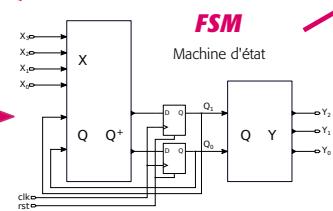
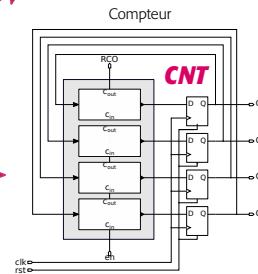
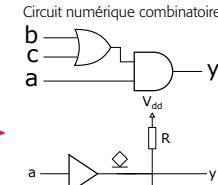
Equation polynomiale

$$Q_0^+ = \overline{Q}_0$$

$$Q_1^+ = Q_0 \oplus Q_1$$

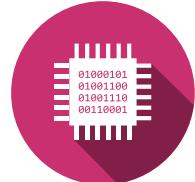


DiD IND



MET

Blague

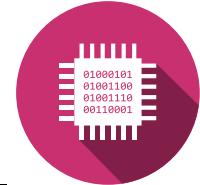


There are 10 types of people in this world. Those who understand binary and those who don't.

• Il y a 10 types de personnes dans ce monde. Ceux qui comprennent le binaire et ceux qui ne le comprennent pas.

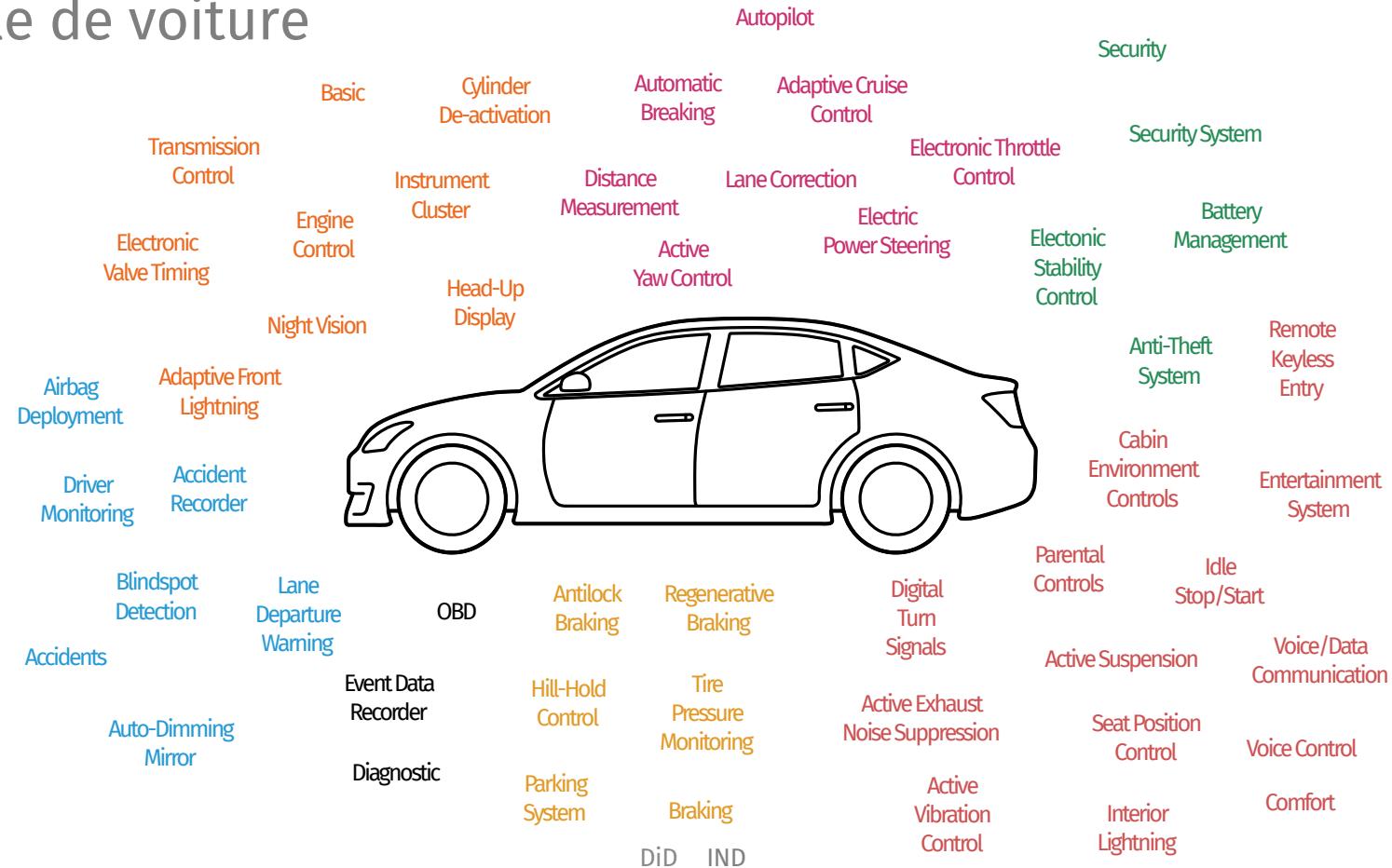
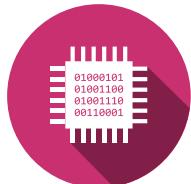
Electronique numérique

Domaines d'application



Electronique numérique

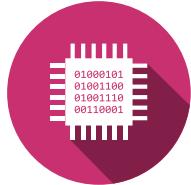
Example de voiture



Electronique numérique

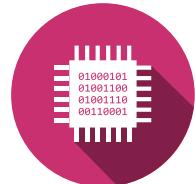
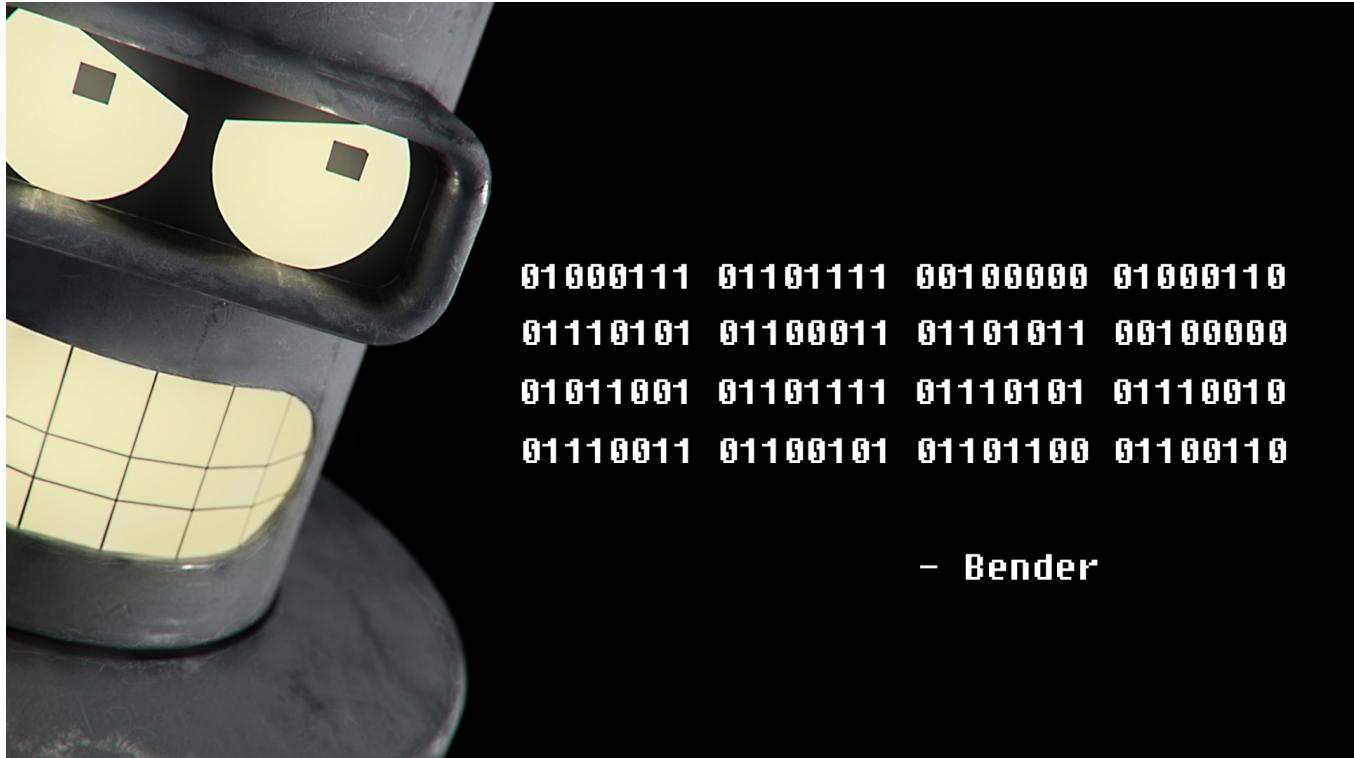
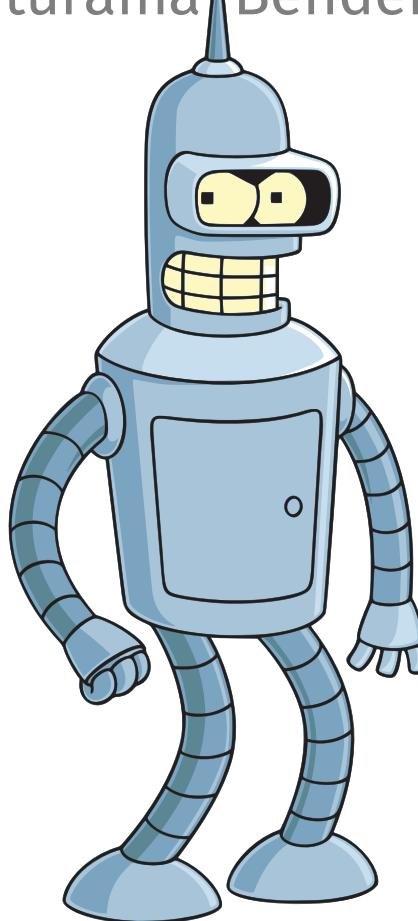
Ariane 5

https://youtu.be/PK_yguLapgA



Electronique numérique

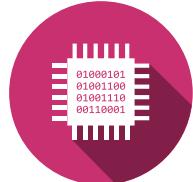
Futurama Bender



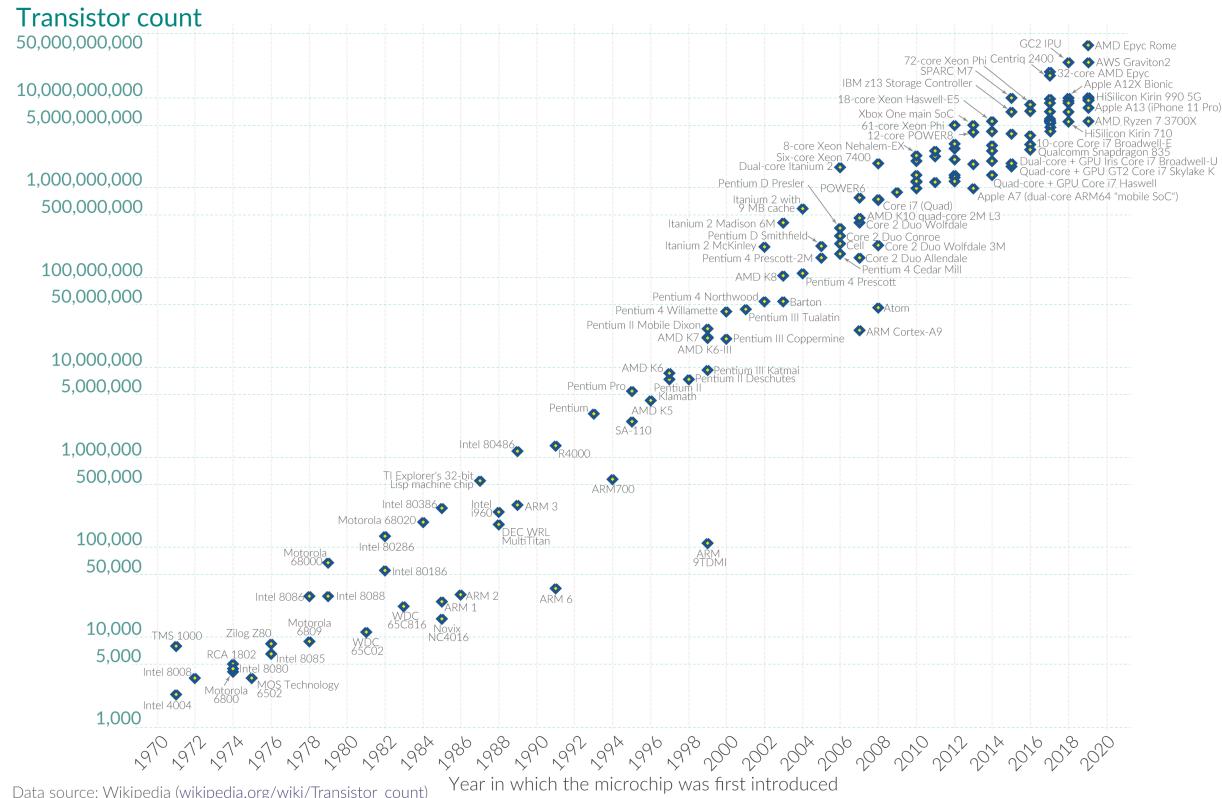
https://youtu.be/_4TPlwwHM8Q

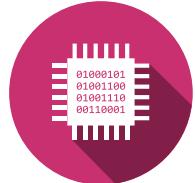
Electronique numérique

Moore's Law



*Number of transistors double
every two years
- Gordon Moore -*



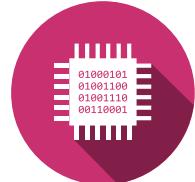


Organisation

- Cours (4 Heures/Semaine)
- Laboratoires (4 Heures/Semaine)
- Appui (2 Heures/Semaine)
- Projet (Inverter $\approx 5 - 6 \text{ Semaine}$)
- Examen
 - 31 Octobre – 4 Novembre
 - 12 Decembre – 16 Decembre

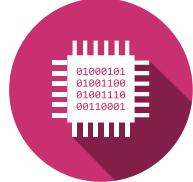
	Semestre d'automne				Exa Semestre	Semestre de printemps	Exa Analoque
Evaluation	Prüf 1	Prüf 2	Projekt	Prüf Sem	Voir prof. analogique	1	Analoque
Coefficient	0.3	0.3	0.4	1			
Note	1 (Moyenne)			1	1 (Moyenne)		1

Coopération Générale



- Présence au cours obligatoire
 - Seuls les professeurs peuvent donner une dispense
 - Si absentéisme grandissant ⇒ information au RF
- Prise de notes indispensable
- Exercices à faire à la maison
 - Travail personnel indispensable
- Utilisation des téléphones mobiles
 - Interdit en classe ⇒ utiliser le temps des pauses
- Nourriture et boisson en classe
 - Interdit en classe

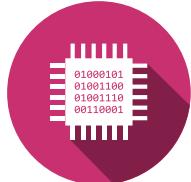
Appui



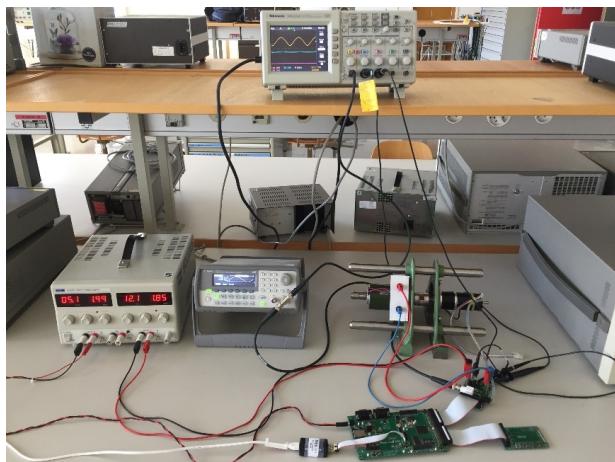
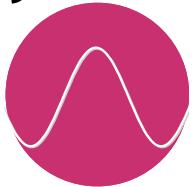
- Obligatoire jusqu'au premier examen
- Ensuite optionnel en fonction de la performance
- Une excellente occasion de faire des exercices

Projet de semestre

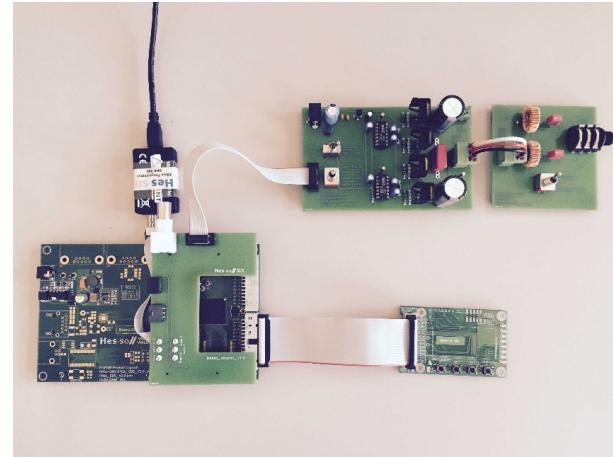
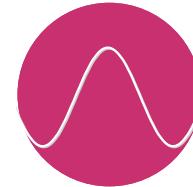
Energie et technique environnementales



Synchro



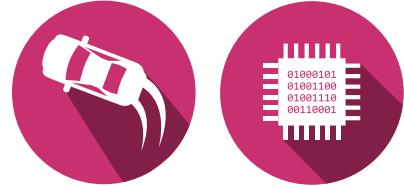
Inverter



Summerschool Kart

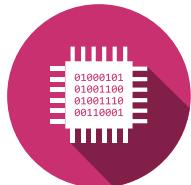
SS1 2017

<https://www.youtube.com/watch?v=g6lU2NDZub8>



Organisation

Professeurs



Bianchi Christophe (BiC)
Bureau: ENP.23.N207
Email: christophe.bianchi@hevs.ch
Tel: +41 58 606 87 60



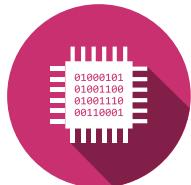
Corthay François (CoF)
Bureau : ENP.23.N312
Email: corthay.francois@hevs.ch
Tel: +41 58 606 87 57



Zahno Silvan (ZaS)
Bureau : ENG.23.N312
Email: silvan.zahno@hevs.ch
Tel: +41 58 606 88 07

Organisation

Collaborateurs



Praplan Charles (PrC)
Bureau : ENG.23.N315
Email: charles.praplan@hevs.ch
Tel: +41 58 606 87 68



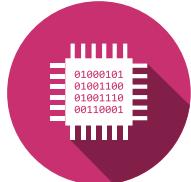
Amand Axel (AmA)
Bureau : ENG.23.N313
Email: axel.amand@hevs.ch
Tel: +41 58 606 87 43



Darko Petrovic (Per)
Bureau : ENG.23.N313
Email: darko.petrovic@hevs.ch
Tel: +41 58 606 84 74

Serveurs et fichiers

Energie et technique environnementales



- **Moodle Cyberlearn**
 - <https://cyberlearn.hes-so.ch/course/view.php?id=21709>
 - 22_HES-SO-VS_8132_Electricité_1 / Elektrotechnik_1
 - Password: *welcome*
- **Microsoft Teams**
 - 22_eln_zas
 - Access Code: **bzyde19**
 - Channels
 - Announcements
Messages de la responsable du module
 - General - Discussions en classe

20_HES-SO-VS_2131_ELECTRICITÉ / ELEKTROTECHNIK

INFORMATIONS DU MODULE / MODULINFORMATIONEN

BASES MÉTIER - ELECTRICITÉ
FACHSPEZIFISCHE GRUNDLAGEN - ELEKTROTECHNIK

The module "Bases métier" (BaM, code 213) is composed of two courses: Electricity (Ele, code 2131) and Mechanics 1 (Mec1, code 2132). The course Electricity is divided into two parts: digital electricity (EIN) and analog electricity (EIA). The module "Fachspezifische Grundlagen" (BaM, Code 213) includes two lectures: Electrotechnics (Ele, Code 2131) and Mechanics 1 (Mec1, Code 2132). The lecture Electrotechnics is split into two: digital Electrotechnics (EIN) and analog Electrotechnics (EIA).

Das Modul "Fachspezifische Grundlagen" (BaM, Code 213) umfasst zwei Vorlesungen: Elektrotechnik (Ele, Code 2131) und Mechanik 1 (Mec1, Code 2132). Die Vorlesung Elektrotechnik ist in zwei geteilt: numerische Elektrotechnik (EIN) und analoge Elektrotechnik (EIA).

Search

Activity Chat Teams Assignments ... Apps Help

Join or create a team

20_eln_se1d General Announcements 3

Create a team Join a team with a code Enter code 2

Join or create a team

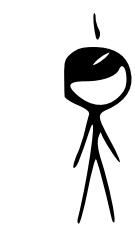
WHY DO I SAY UH
WHY IS SEA SALT BETTER
WHY ARE THERE TREES IN THE MIDDLE OF FIELDS
WHY IS THERE NOT A POKEMON MMO
WHY IS THERE LAUGHING IN TV SHOWS
WHY ARE THERE DOORS ON THE FREEWAY
WHY ARE THERE SO MANY SVHOST-EXE RUNNING
WHY AREN'T ANY COUNTRIES IN ANTARCTICA
WHY ARE THERE SCARY SOUNDS IN MINECRAFT
WHY IS THERE KICKING IN MY STOMACH
WHY ARE THERE TWO SLASHES AFTER HTTP
WHY ARE THERE CELEBRITIES
DINOSAUR GHOSTS
WHY DO SNAKES EXIST
WHY DO OYSTERS HAVE PEARLS
WHY ARE DUCKS CALLED DUCKS
WHY DO THEY CALL IT THE CLAP
WHY ARE KYLE AND CARTMAN FRIENDS
WHY IS THERE AN ARROW ON AANG'S HEAD
WHY ARE TEXT MESSAGES BLUE
WHY ARE THERE MUSTACHES ON CLOTHES
WHY WUBA LUBBA DUB DUB MEANING
WHY IS THERE A WHALE AND A POT FALLING
WHY ARE THERE SO MANY BIRDS IN SWISS
WHY IS THERE SO LITTLE RAIN IN WALLIS
WHY IS WALLIS WEATHER FORECAST ALWAYS WRONG

WHY ARE THERE MALE AND FEMALE BIKES
WHY ARE THERE BRIDESMAIDS
WHY DO DYING PEOPLE REACH UP
HOW FAST IS LIGHTSPEED
WHY ARE OLD KLINGONS DIFFERENT

WHY ARE THERE SQUIRRELS


WHY ARE THERE TINY SPIDERS IN MY HOUSE
WHY DO SPIDERS COME INSIDE
WHY ARE THERE HUGE SPIDERS IN MY HOUSE
WHY ARE THERE LOTS OF SPIDERS IN MY HOUSE
WHY ARE THERE SPIDERS IN MY ROOM
WHY ARE THERE SO MANY SPIDERS IN MY ROOM

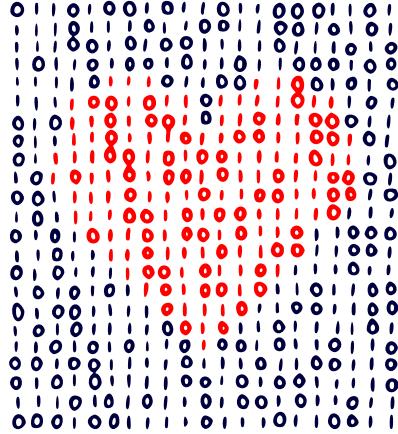
WHY DO SPIDER BITES ITCH
WHY IS DYING SO SCARY
WHY IS THERE HELL IF GL
WHY IS THERE NO GPS IN LAPTOPS
WHY DO KNEES CLICK
WHY AREN'T THERE E GRADES
WHY 2*B / 2*B

WHY HAVE DINOSAURS NO FUR
WHY ARE SWISS AFRAID OF DRAGONS
WHY IS THERE A LINE THROUGH HTTPS
WHY IS THERE A RED LINE THROUGH HTTPS ON TWITTER
WHY IS HTTPS IMPORTANT
WHY ARE THERE WEEKS
WHY DO I FEEL DIZZY
WHY ARE THERE SO MANY CROWS IN ROCHESTER
WHY IS TO BE OR NOT TO BE FUNNY
WHY DO CHILDREN GET CANCER
WHY IS POSEIDON ANGRY WITH ODYSSEUS
WHY IS THERE ICE IN SPACE
WHY ARE THERE ANTS IN MY LAPTOP
WHY ARE THERE GHOSTS

WHY IS THERE AN OWL IN MY BACKYARD
WHY IS THERE AN OWL OUTSIDE MY WINDOW
WHY IS THERE AN OWL ON THE DOLLAR BILL
WHY DO OWLS ATTACK PEOPLE
WHY ARE FPGA's EVERYWHERE
WHY ARE THERE HELICOPTERS CIRCLING MY HOUSE
WHY ARE THERE GODS
WHY ARE THERE TWO SPOCKS
WHY ARE MY BOOBS ITCHY
WHY ARE CIGARETTES LEGAL
WHY ARE THERE DUCKS IN MY POOL
WHY IS JESUS WHITE
WHY IS THERE LIQUID IN MY EAR
WHY DO Q TIPS FEEL GOOD
WHY DO PEOPLE DIE
WHY AREN'T THERE GUNS IN HARRY POTTER
WHY ARE WRESTLERS ALWAYS WET
WHY ARE OCEANS BECOMMING MORE ACIDIC

WHY ARE THERE FEMALE

WHAT IS <https://xkcd.com/1256/>
WHY DO THEY SAY T-MINUS
WHY ARE THERE OBELISKS
WHY IS LIFE SO

WHY AREN'T THERE GUNS IN HARRY POTTER



Hes·so // VALAIS
WALLIS



Haute Ecole d'Ingénierie
Hochschule für Ingenieurwissenschaften

Silvan Zahno silvan.zahno@hevs.ch
Christophe Bianchi christophe.bianchi@hevs.ch
François Corthay francois.corthay@hevs.ch

