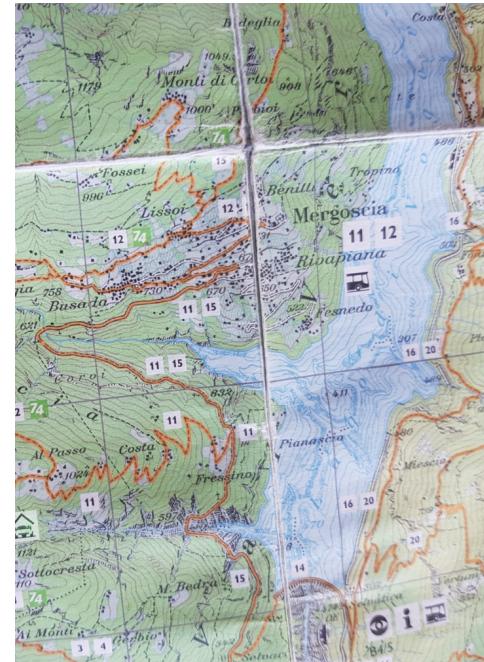


IDUN Assessment

18. August 2021



Frontend/Design (Experiment)
Backend/Cloud (API)
Demo Showcase (Marketing)

```
.hero {  
background: #24ABE6;  
color: #111111;  
font-size: 60px;  
font-family: "Segoe UI";
```

Frontend

```
.heading,  
.sub-heading {  
font-family: "Lobster";  
font-size: 220px;
```

“ Auditory Oddball Paradigm

*Presentations of sequences of repetitive stimuli
are infrequently interrupted by a deviant stimulus.*

*The reaction of the participant to this "oddball"
stimulus is recorded.*

POC
Design

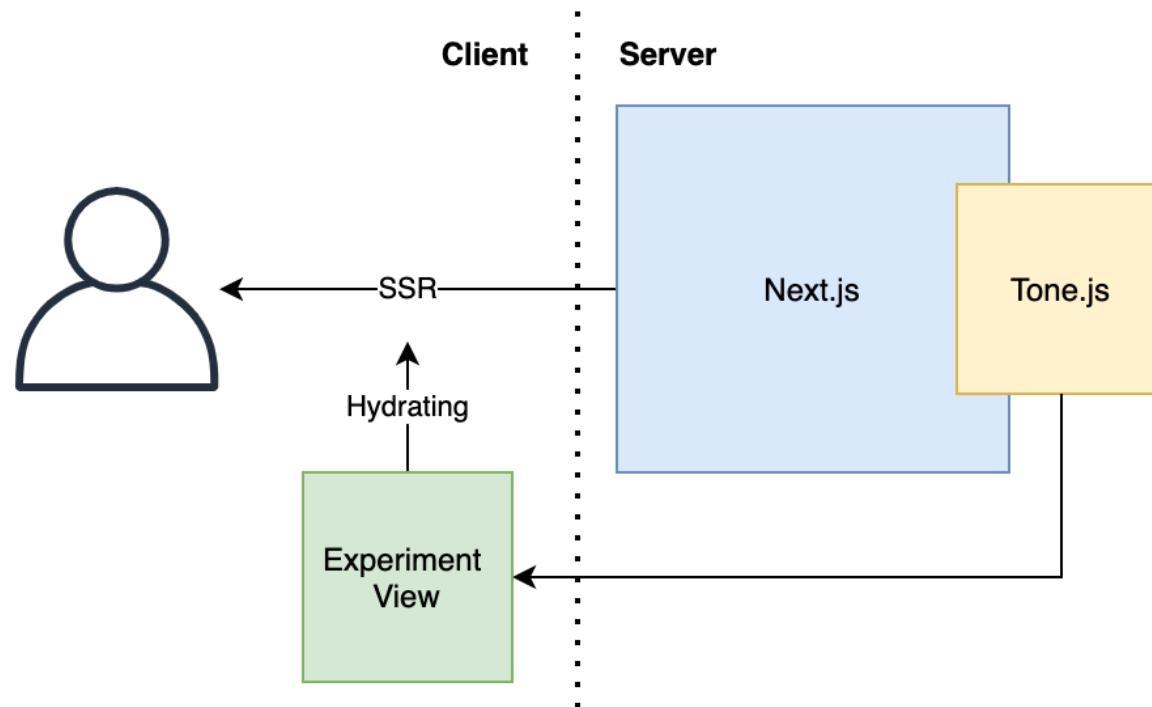
POC
Implem.

MVP
Wireframes

**Static Sound
Files**

**Synthesiser
+ Sequencer**

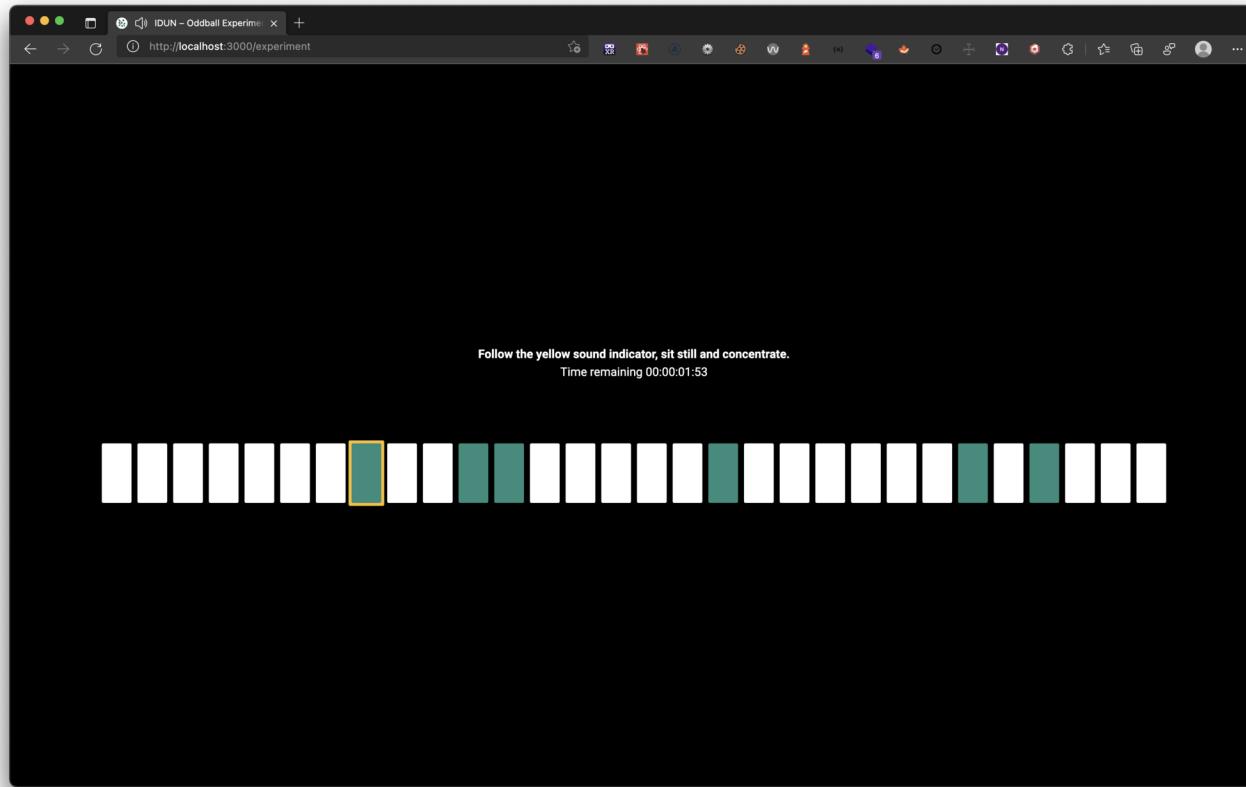




Tone.js

[build](#) passing  [codecov](#) 98%

Tone.js is a Web Audio framework for creating interactive music in the browser. The architecture of Tone.js aims to be familiar to both musicians and audio programmers creating web-based audio applications. On the high-level, Tone offers common DAW (digital audio workstation) features like a global transport for synchronizing and scheduling events as well as prebuilt synths and effects. Additionally, Tone provides high-performance building blocks to create your own synthesizers, effects, and complex control signals.

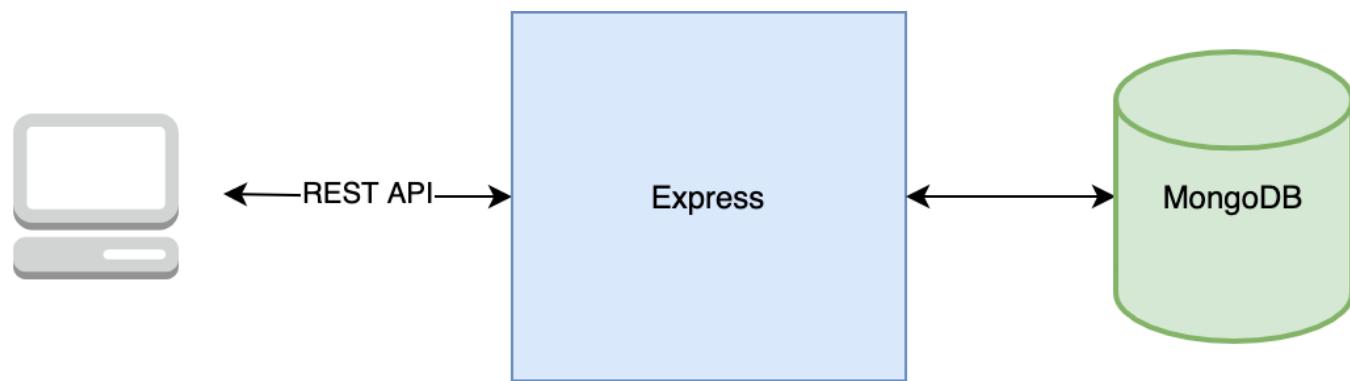




Backend

task2_data.json

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  }
}
```



IDUN Assessment (Base Environment) – Update one Subject

Dashboard / IDUN Assessment ▾

No Environment Cookies

POST http://localhost:8080/api/feature/updateOne/611a59be4d21f3f78b88013a

Send 200 OK 87.3 ms 282 B Just Now ▾

Filter JSON Auth Query Header Docs

Preview Header 8 Cookie Timeline

GET Get one Feature of one Subject

GET Get Features of all Subjects

POST Bulk update Subjects

POST Update one Subject

POST Create a new Feature

```
1= {
2   "_id": "611a59be4d21f3f78b88013a",
3   "feature_0": 0.0123456789,
4   "feature_1": 0.9329791556,
5   "feature_2": 0.5291835002,
6   "feature_3": 0.3420410043,
7   "feature_4": 0.5346769422,
8   "feature_5": 0.187294837,
9   "feature_6": 0.3616951782,
10  "feature_7": 0.0006547783,
11  "feature_8": 0.5768966683,
12  "feature_9": 0.74372108
13 }
```

Beautify JSON \$.store.books[*].author

This screenshot shows a REST client interface with the following details:

- URL:** POST http://localhost:8080/api/feature/updateOne/611a59be4d21f3f78b88013a
- Status:** 200 OK
- Time:** 87.3 ms
- Size:** 282 B
- Method:** POST (highlighted in purple)
- Request Body (JSON):**

```
1= {
2   "_id": "611a59be4d21f3f78b88013a",
3   "feature_0": 0.0123456789,
4   "feature_1": 0.9329791556,
5   "feature_2": 0.5291835002,
6   "feature_3": 0.3420410043,
7   "feature_4": 0.5346769422,
8   "feature_5": 0.187294837,
9   "feature_6": 0.3616951782,
10  "feature_7": 0.0006547783,
11  "feature_8": 0.5768966683,
12  "feature_9": 0.74372108
13 }
```
- Response Headers:** Header 8
- Timeline:** Just Now

```
dataValidator.ts — ~/Google Drive/004_subsidiary/001_active/fidun-assessment/problem_2/src/middlewares/dataValidator.ts

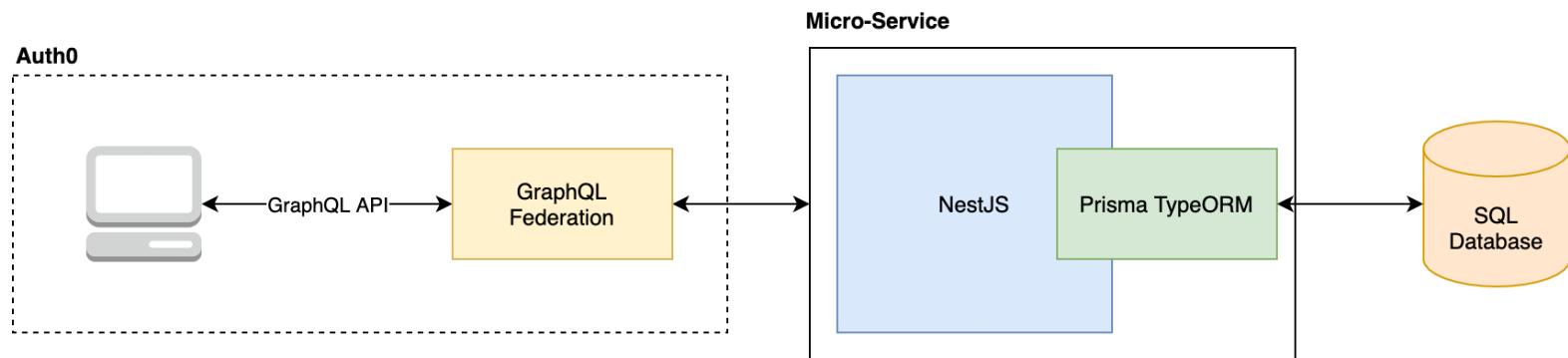
problem_2 > src > middlewares > dataValidator.ts > ...
You, 2 days ago | 1 author (You)
1 import { plainToClass } from 'class-transformer' You, 2 days ago via PR #2 • Adding working REST API backend 17.7K (gzipped: 3.9K)
2 import { ClassType } from 'class-transformer/ClassTransformer' 12.2K (gzipped: 3K)
3 import { validate, ValidationErrors } from 'class-validator' 660.8K (gzipped: 135.4K)
4 import * as express from 'express'
5 import { HttpException } from '../exceptions/httpException'
6 import { HttpStatusEnum } from '../shared'

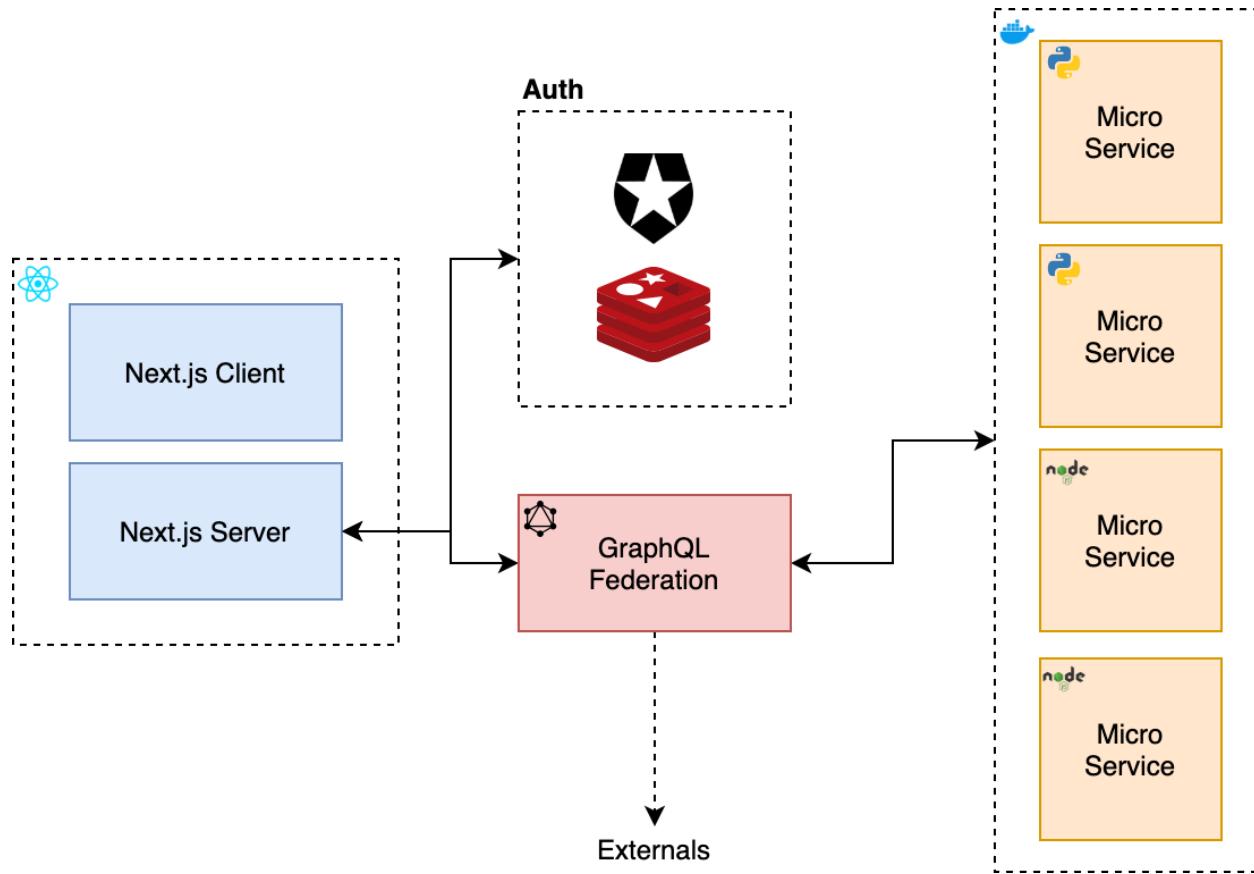
7 function validationMiddleware(type: ClassType<never>): express.RequestHandler {
8   return async (req, res, next): Promise<void> => {
9     const errors: ValidationErrors[] = await validate(
10       plainToClass(type, req.body)
11     )
12
13     if (errors.length > 0) {
14       const message = errors
15         .map((error: ValidationErrors) => Object.values(error.constraints))
16         .join(',')
17       next(new HttpException(HttpStatusEnum.BAD_REQUEST, message))
18     } else {
19       next()
20     }
21   }
22 }
23
24 export default validationMiddleware
25
```

The screenshot shows a code editor window with the following details:

- Title Bar:** dataValidator.ts — ~/Google Drive/004_subsidiary/001_active/fidun-assessment/problem_2/src/middlewares/dataValidator.ts
- Editor Area:** Displays the content of the 'dataValidator.ts' file.
- Explorer Bar:** Shows the project structure:
 - OPEN EDITORS: dataValidator.ts
 - IDUN-ASSESSMENT
 - problem_1
 - problem_2
 - img
 - node_modules
 - src
 - config/db
 - database.ts
 - exceptions
 - features
 - init
 - middlewares
 - dataValidator.ts
 - errorHandler.ts
 - shared
 - util
 - app.ts
 - server.ts
 - .dockerignore
 - .env
 - .env.template
 - .eslintrc
 - .gitignore
 - .prettierrc
 - .prettierrc
 - data.json
 - Dockerfile
 - insomnia.yaml
 - package.json
 - README.md
 - tconfig.json
 - yarn.lock
- problem_3
- .gitignore
- problems.pdf
- README.md

- Status Bar:** main, Cloud Code, typescript, minikube, Server not selected, 23 mins, You, 2 days ago via PR #2, Ln 1, Col 49, Spaces: 2, UTF-8, LF, typescript, Go Live, 4.3.5, kite: not installed, Prettier





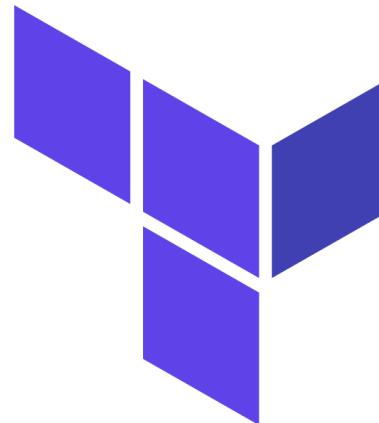
```
$ terraform plan
An execution plan has been generated and is shown below.

Resource actions are indicated with the following symbols:
+ create

Terraform will perform the following actions:

# aws_ebs_volume.iac_in_action will be created
+ resource "aws_ebs_volume" "iac_in_action" {
    + arn          = (known after apply)
    + availability_zone = "us-east-1a"
    + encrypted      = (known after apply)
    + id            = (known after apply)
    + iops           = 1000
    + kms_key_id     = (known after apply)
    + size           = 100
    + snapshot_id    = (known after apply)
    + tags           = {
        + "Name" = "Terraform-managed EBS Volume for IaC in Action"
    }
    + type           = "io1"
}

Plan: 1 to add, 0 to change, 0 to destroy.
```

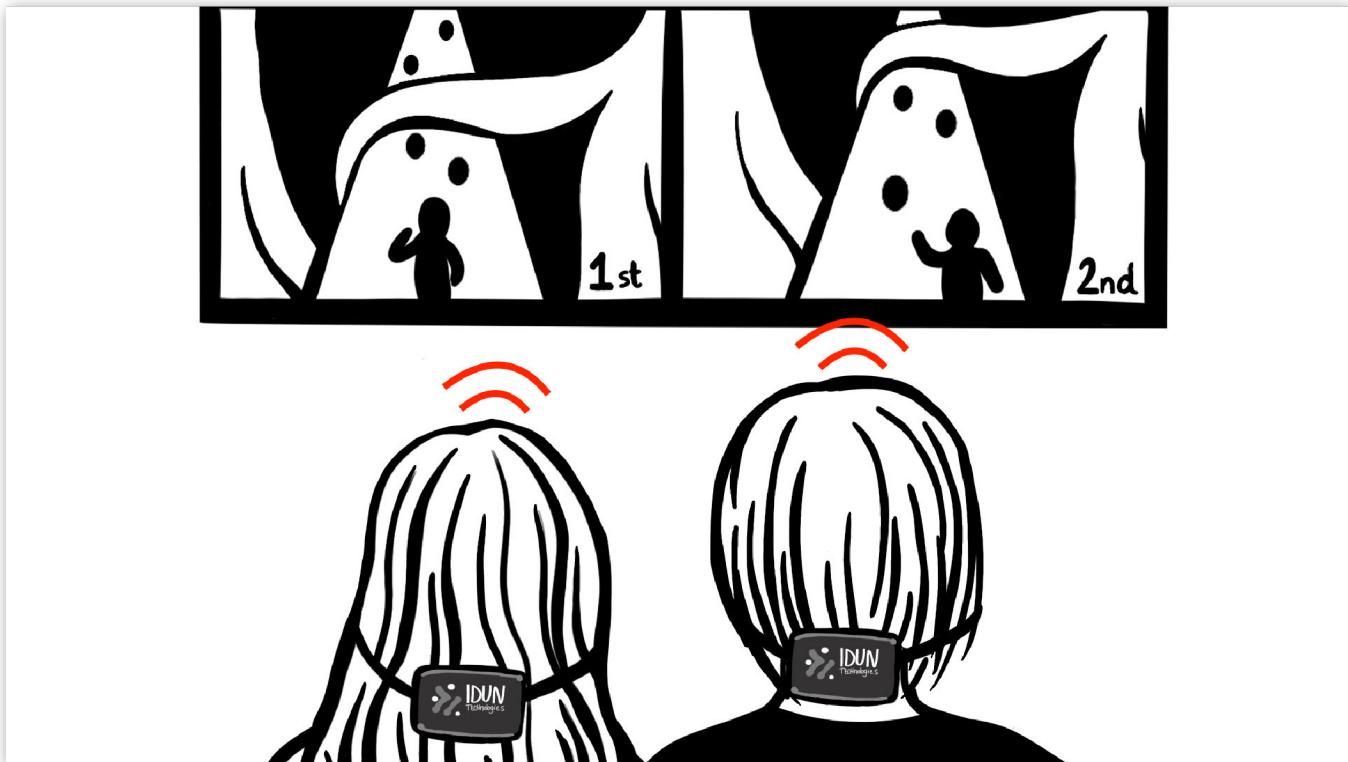




Demo Showcase

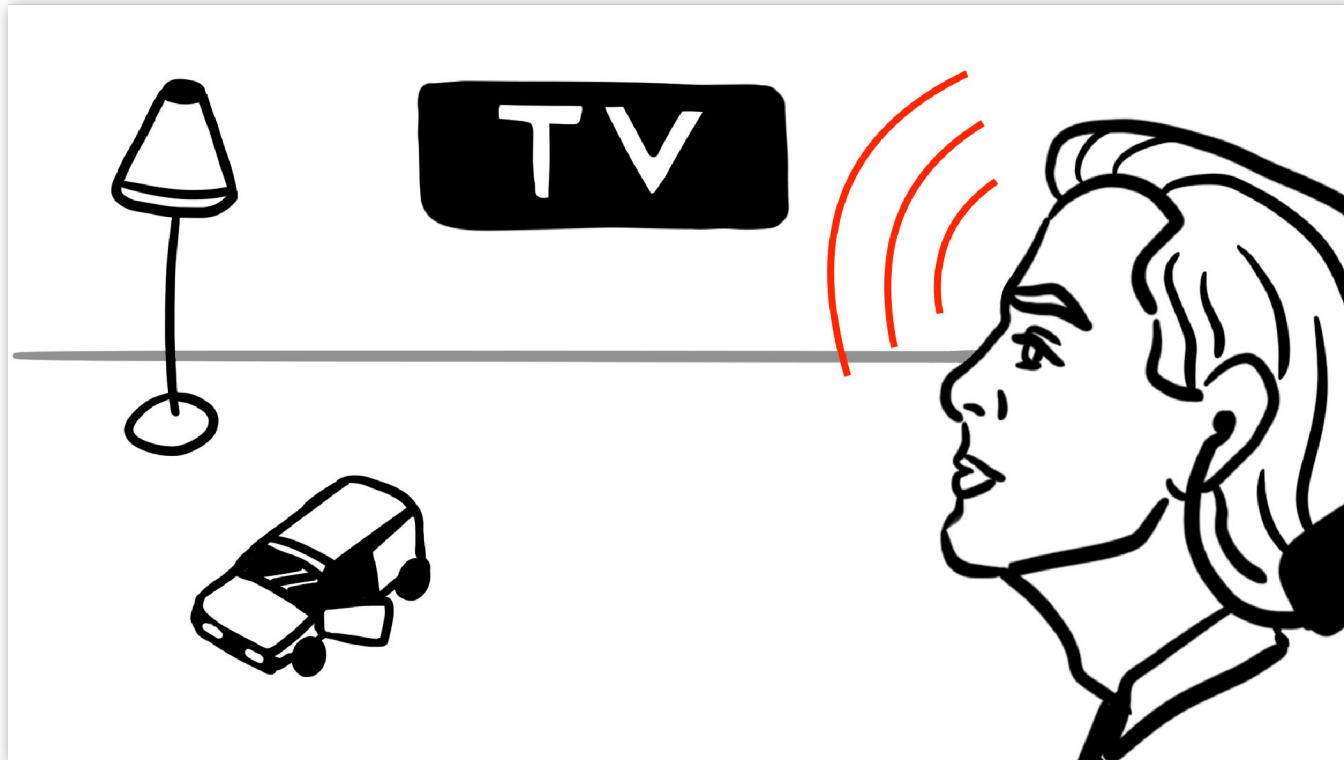


Mind Racing





IoH Room



A: The Internet of Humans is a moonshot project that needs newly invented technology to reach major milestones – and that is precisely how I would market IDUN. Even though IDUN is a startup, I think it is important to show that we are a very competent team with different experts in this new, innovative, and very interdisciplinary field. We need to exhibit the full range of expertise from the team and the product.

Another factor is to show a clear product vision: What can it be used for? How will it impact the world in the next three years? What differentiates IDUN from others? And what differentiates BCIs from other technologies?

Last but not least, we have to show that BCIs are coming – it is an inevitable field of technology that will connect many different and essential areas (like the WWW did); here is where I see the importance of concise communication in terms of security and privacy. We won't just watch how the innovation happens with the downsides like neurohacking, or brain-data fingerprinting. In contrast, we will be the first to address these sensitive issues publicly (panels, articles, conferences, live streams etc.).

To summarise:

- Show the product and, more importantly, what it can do to change one's life.
- Always talk about privacy and security in the growing (and sometimes scary-sounding) field of neurotechnology.
- And don't forget the most critical asset: the team, our interdisciplinary experts in neuroscience, hardware, machine learning, software, security etc. We are doing our best to achieve craftsmanship in what we do to make the earth a better place.

Ideas dump:

- Create a conference about neurorights and neuro-privacy.
- Create a panel about the future of neurotechnology (can be a Meetup e.g.).
- Write articles about various things: philosophy, privacy, technological innovation etc.
- Create open-source tools for the neurotech community.
- Bridge the gap between academia and the industry via live streams and guest podcasts.
- Create a hackathon with your BCI to market the product in terms of applicable ideas and make yourself a name in the engineering community (like the ImpactHub in Zürich).
- Show progress about the neurointelligence platform, the brain API, the Guardian etc. publicly via showreels, videos, articles, live streams etc.
- Engage the employees to become brand ambassadors in their fields (e.g. create a Medium publication and let them write about the product, the company, their ideas etc.).

Questions?



Thank you for your time