Programmer Guide

Project Name: Software Technology and Intelligence Research Lab (STIL)
Author(s): The Minh Luong, Jean-Philippe Mongeau, Francis Leroux-Contant, Alexander Barcenes Flores, Hugo Rhéaume-Simard

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1. Introduction

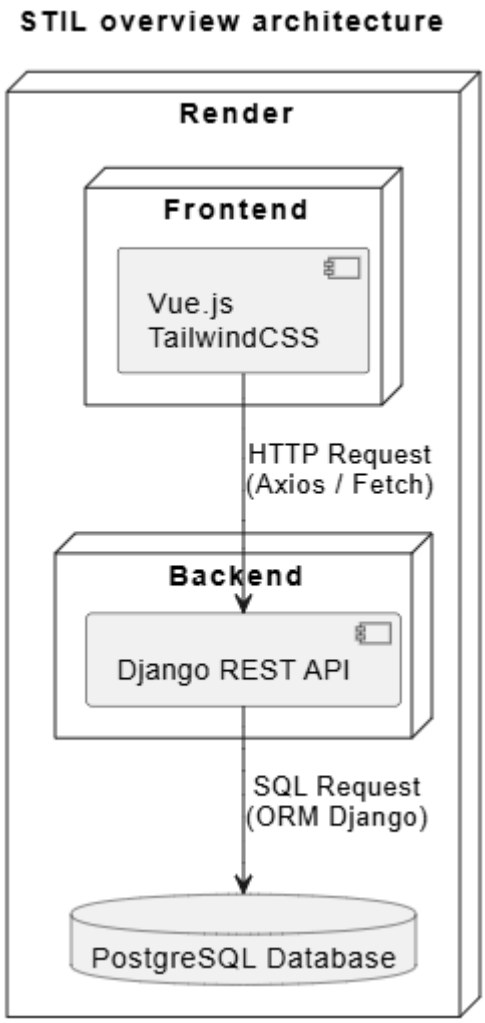
An interactive web platform to centralize, manage, and showcase the scientific activities of a software engineering research laboratory. This project aims to design and develop a structured website for a research laboratory. The goal is to centralize the lab's key information and facilitate its management and dissemination, both internally and to the scientific and industrial community.

2. Technologies Used

Layer	Technology
Frontend	VueJS + TypeScript
Backend	Python, Django
Authentication	JWT
Database	PostgreSQL
DevOps	Docker, GitHub Actions, Render
Testing	Vitest, Pytest

3. Architecture Overview

High-level description of the system architecture.



4. Project Structure

Backend

```
backend/
├─ backend/
│    ├─ admin/
│    ├─ management/
│    ├─ migrations/
│    ├─ models/
│    ├─ serializers/
│    ├─ services/
│    ├─ templates/
│    ├─ test/
│    ├─ views/
├─ config/
├─ logs/
└
```

Frontend

```
src/
├─ assets/
├─ components/
│  └─ publications/
│       ├─ index.ts
│       ├─ PublicationCard.vue
│       ├─ PublicationSortOptions.vue
│       └─ PublicationsPage.vue
├─ composables/
├─ data/
├─ middleware/
├─ test/
│  └─ publications/
│       ├─ index.ts
│       ├─ PublicationCard.spec.ts
│       ├─ PublicationSortOptions.spec.ts
│       └─ PublicationsPage.spec.ts
└
```

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5. Development Environment Setup

Steps to set up the project locally.
Clone the project

```
git clone https://github.com/stilab-ets/stilab-ets.github.io.git
```

Backend

1. Install Docker.

2. From the root of the repository, create the virtual environment

```
python -m venv .venv
.\.venv\Scripts\activate # Windows
source .venv/bin/activate # Linux
pip install -r requirements.txt
pre-commit install # To install some pre-commit hooks to help with code quality
```

3. Create a `.env` file and add the following environment variables:

```
DJANGO_DEBUG=True
DJANGO_LOG_LEVEL=DEBUG # Options are DEBUG, INFO, WARNING, ERROR and CRITICAL

DB_USER=CHANGE_ME
DB_PASSWORD=CHANGE_ME
```

```
DB_HOST=db
DB_PORT=5432
DB_NAME=postgres

EMAIL_HOST=SMTP_SERVER_HOST
EMAIL_PORT=SMTP_SERVER_PORT
EMAIL_USE_TLS=False
EMAIL_HOST_USER=email@example.com
EMAIL_HOST_PASSWORD=CHANGE_ME
BACKEND_URL="https://www.backend.example"

VITE_API_BASE_URL=http://localhost:8000
```

4. Use the command:

```
docker compose build
docker compose up [--build] [-d] # --build to skip the first command, -d to run in
detached mode
```

5. To run tests:

```
docker compose exec backend sh -c "export DJANGO_SETTINGS_MODULE=config.settings
&& pytest --cov=backend --cov-report=term --cov-fail-under=60 --cov-
config=.coveragerc"
```

The database will be available at `localhost:5432` and pgAdmin at `localhost:5050`. The backend app will be available at `localhost:8000`

pgAdmin login credentials:

User: `admin@admin.com`
Password: `admin123`

The mailhog server to test email delivery is available at `localhost:8025`.

Frontend

1. Install the required dependencies:

```
npm install
```

2. Start the application:

```
npm run dev
```

The application will be available locally at http://localhost:5173/

3. Run unit tests with coverage:

```
npm run test
```

Prerequisites

- Node.js v22.14.0
- Python 3.13
- Docker

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6. Importing data

Indications on how to import data

1. Set up the database

```
docker compose exec backend python manage.py migrate
docker compose exec backend python manage.py createsuperuser

# To create new migrations
docker compose exec backend python manage.py makemigrations --name migration_name
```

The Django admin will be available at `localhost:8000/admin` with the credentials created previously with the createsuperuser command

2. Synchronise publications

```
docker compose exec backend python manage.py getpublications [--fast | -f]
```

3. Insert legacy data

```
docker compose exec backend python manage.py insert_legacy_data
```

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7. Using the API

After starting the backend application, you can find the API documentations at http://localhost:8000/swagger

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8. Contribution Guidelines

- Create a branch

```
git checkout -b feat_my-new-feature
```

- Make your changes
- Create a pull request
- Merge when your changes have at least one approval AND when the CI pipelines are passing

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