Lola HR Contract Management System

EMPLOYMENT CONTRACTS

An intelligent workflow replacing manual form-filling with conversational AI to create and manage employment contracts.

C>ONSTRUCTOR NEXADEMY

BAK Data Knowledge Technology

Our Client: BAK Economics

BAK Economics is a leading independent economic research institute and consultancy, providing empirical economic studies, in-depth analyses, and model-based forecasts for businesses, public institutions, and policymakers in Switzerland and internationally.

Economic Research

In-depth studies and data-driven insights to inform policy and business strategy.

Market Analysis

Detailed assessment of market dynamics, competitive landscapes, and emerging trends.

Strategic Forecasting

Forward-looking projections and scenarios to guide long-term decision-making.

Made with GAMMA

Transforming Contract Creation

The Problem

- Manual data entry fatigue from complex forms
- Contract version confusion across 5 types
- Employee lookup complexity with typos
- Date formatting inconsistencies
- Missing validation and audit trails

The Solution

- Fully operational workflow of the contracts and employees
- Natural language conversation interface
- Natural date parsing ("next Monday")
- Intelligent Typos Handling
- Automatic contract type selection
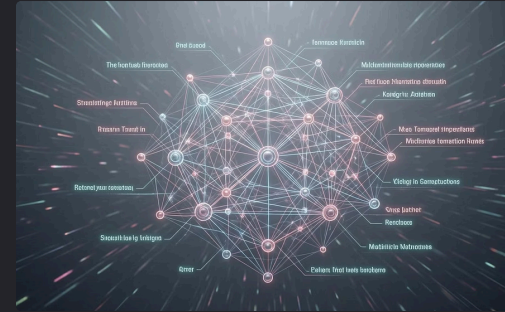
Made with GAMMA

Features
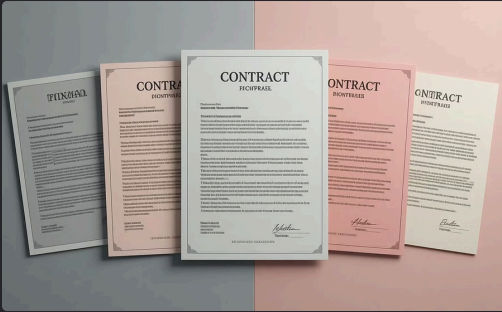
5 Contract Types

A (permanent), B (internship), C (hourly), D (amendment), A1 (conversion to permanent)

PDF Upload & Extraction

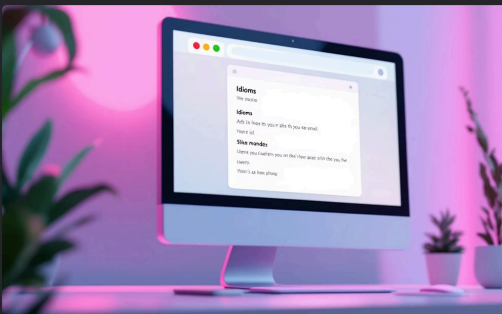LLM-powered parsing of existing employee contracts

Natural Language Processing

Understands "next Monday", "90k" naturally

Contract Generation

Generates contracts as docx and pdf

Email Creation and Sending

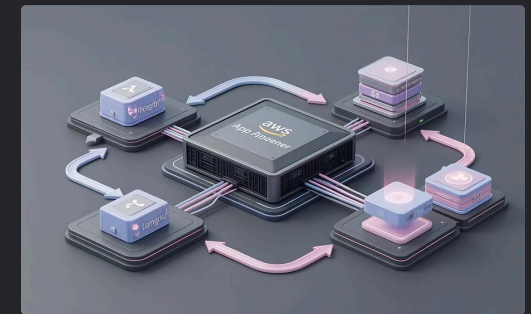Automatic generation of email with AI of idioms selection

Multi-language Support

German, English, Spanish UI

Full Flexibility

At the HR user level in the contract templates for future changes

Low Maintenance Costs

The service selected in AWS Serverless keeps costs low and scalability

Made with GAMMA

Project Demos videos

Web App Link

Tutorial Lola Workflow and Chatbot

▶ YouTube

Complete HR LOLA Tutorial

03:05

Made with GAMMA

What's Next?

Bulk generate of contracts — 1

Operate with data entry in an Excel spreadsheet to perform mass generation/changes of draft contracts (*first version is in production*)

2 — **Integration with existing systems**

HRIS and payroll system integration (download Excel spreadsheet with monthly payroll information)

Expand beyond contracts — 3

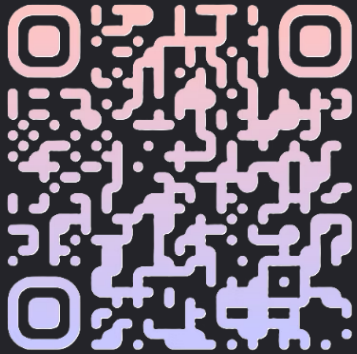Onboarding, offboarding, policy documents

4 — **Analytics dashboard**

Workflow insights and reporting capabilities

5

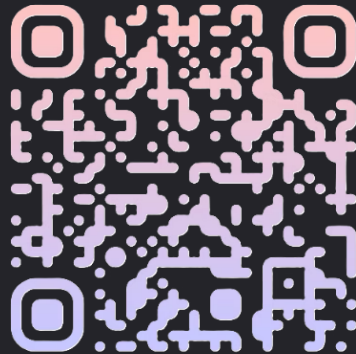Made with GAMMA

Thank you! Questions?

Alejandra Vicaria	Catalina Cimpanu	Dora Novoa	Laura Fatta
LinkedIn Profile	**LinkedIn Profile**	**LinkedIn Profile**	**LinkedIn Profile**

Made with GAMMA
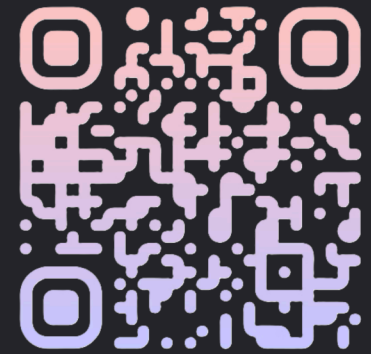
Technology Stack

Backend Framework

Flask 3.0.0 with SQLAlchemy ORM in AWS App Runner, PostgreSQL database, Flask-Migrate for migrations

AI/LLM Layer

OpenAI GPT-4 / Anthropic Claude 3

Document Processing

python-docx for Word, reportlab for PDF generation, pdfplumber for parsing

Storage & Deployment

AWS S3 cloud storage, gunicorn WSGI server, Docker containerization

Custom API REST Gateway

To reduce costs a custom gateway was built for internet access to communicate with AI API keys and SMTP servers.

How Lola Works

1 Frontend Layer for the Workflow

User interface and state workflow with some forms

2 Flask Application

Routes handle requests, services process business logic, models manage data

3 Lola Agent to make the Contracts

AI agent processes messages, manages conversation state, validates collected data, and triggers document generation

4 Data Layer

PostgreSQL stores employees, contracts, audit logs; S3 stores documents

5 Document Generation and Sending EMails

DOCX templates filled with data, converted to PDF, stored and delivered

Made with GAMMA

Contract Creation Workflow

01

Conversation Start

User opens chat, agent greets and asks: "New or existing employee?"

02

Employee Lookup

Agent searches database, determines contract version

03

Data Collection

Agent asks for: name, gender, job title, salary, start date, workload, representatives

04

Validation

Checks all required fields, date order, authorized signatories, Swiss labor law compliance

05

Confirmation Summary

Agent displays complete data, user approves or requests changes

06

Document Generation

DOCX template filled, converted to PDF, saved to database with audit log

07

Delivery

User downloads PDF or sends via email to employee

Contract Version Decision Matrix

Version A

New hire, permanent

Employee not in database, creating permanent contract with annual salary

Version B

New hire, internship

Temporary contract with end date, monthly salary basis

Version C

New hire, hourly

Hourly contract with monthly workload hours specified

Version D

Existing, change terms

Amendment to existing permanent contract (A/D/A1), references original dates

Version A1

Convert to permanent

Existing intern/hourly (B/C) converting to permanent employment

Made with GAMMA

Database Architecture

Users & Auth
Authentication, roles (admin/hr), permissions

Employees
Name, gender, job title, current salary, workload

Contracts
Version, dates, salary, status, document path

Change Requests
Salary/workload changes, old/new values, effective date

Audit Logs
User actions, timestamps, activity tracking

Job Positions
Position names, types of salaries and open positions

Departments
Organizational units, codes, descriptions

Company Info
Name, address, contact details for contracts

11 tables total managing employees, contracts, audit trails, job positions, departments, company information, and document templates.

Made with GAMMA