DENIS VLAS

SOFTWARE DEVELOPER

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SUMMARY

Oneofmy main objectives is to build connections and collaborate with individuals passionate about technology in an environment that fosters the exchange of ideas and innovation. I am constantly seeking opportunities to engage in projects that contribute to the development of the technical field and bring innovative solutions to the digital world.

TECHNICAL SKILLS

Frontend		**Backend**		**Tools & others**	
React js	Responsive design	Javascript	Python	Git	Firebase
Typescript	CSS	Node js	Flask	Docker	
Javascript	HTML	Express js	Web scraping	Testing	
		GraphQL	Machine learning	Debugging	
		Hasura	Deep learning	Vps hosting	
		SQL	AI content generation		
		REST API	AI agents		

PROFESSIONAL EXPERIENCE

Internship at Carasent **Mar-Jun 2025**

- Implemented biometric authentication (WebAuthn) integration on Ad Opus (frontend + backend).
- Used React (TypeScript), Tada GenQL, GraphQL, Hasura, MobX-State-Tree, company proprietary libraries.
- Collaborated with UI/UX from Figma; managed tasks via Jira and Bitbucket.
- Maintained and updated internal libraries to improve system capabilities and security.
- Designed and implemented mobile-optimized document scanning feature (React frontend, Node.js + Express backend).
- Applied advanced image processing: grayscale, contrast enhancement, sharpening, binarization.
- Created a custom Python ML model for enhanced image binarization surpassing OpenCV.
- Implemented automatic document edge detection with adjustable masking.
- Converted processed images into downloadable PDFs; supported optional OCR integration.

Internship at ISHUNEA TECH SOLUTIONS **Feb-Jun 2024**

Contributed to the development of easyreser.io, an ERP system for the service industry, enabling efficient management of operations. Developed statistical components using React.js and TypeScript. Created interactive charts and dashboards to visualize data. Used Git and Bitbucket for version control and code management. Collaborated closely with backend and design teams for seamless integration. Enhanced user experience through intuitive interfaces. Implemented designs from Figma to ensure consistency and efficiency in user interface development.

University internship at ISHUNEA TECH SOLUTIONS Sep-Oct 2023

Developed a full-stack Kanban task management application with user/admin functionalities. Utilized React, TypeScript, Git, MySQL, and Express. Implemented features such as project management, user authentication, task creation within projects, task assignment to registered users, task editing, status updates via drag-and-drop functionality, and integration of a text editor for descriptions and comments.

EDUCATION

Technical University of Moldova, Chișinău **Sep 2022 - Jun 2025**

- Bachelor of Computer Science

Theoretical Lyceum Mihail Sadoveanu, Hîncești **Sep 2019 - May 2022**

- Mathematics and science profile

EXTRACURRICULAR ACTIVITIES

Hackathon Participant **Nov 2024**

8th CASSINI Hackathon, Mediacor, Chișinău

Subject: EU Space for Defence & Security – Unmanned Drone Applications for Defence & Security Operations

Project: Fire Detection & Situational Awareness System for Drone Surveillance

Summary: The goal of the project was to build an AI-powered system that detects fire and analyzes the surrounding environment in real time, sending alerts with geolocation and contextual information (e.g., presence of people or obstacles) to assist emergency responders. The system was designed to operate through unmanned aerial drones for use in defense, disaster response, and public safety scenarios.

Technologies Used: Python, OpenCV, computer vision techniques

My Role:

- Designed and implemented the core fire detection module using image analysis techniques
- Developed the Python backend responsible for processing live drone footage

Impact: Enabled rapid identification of fires and enhanced situational awareness for emergency responders, supporting faster intervention and safer rescue missions in high-risk areas.

Hackathon Participant **Sep 2024**

DeepTech GigaHack, Tekwill, Chișinău

Subject: Building a virtual assistant to handle customer support inquiries for a local telecom provider

Project: AI Support Assistant for StarNet

Summary: Developed a web-based AI assistant designed to answer customer questions related to StarNet services, technical issues, and company information. The assistant featured a React frontend and a Python backend, integrated with Groq API and powered by the LLaMA 3.2 model to provide real-time natural language responses.

Technologies Used: React, TypeScript, Python, FastAPI, Groq API, LLaMA 3.2, REST API integration, context-aware prompting

My Role:

- Collected and structured the knowledge base content from public and internal StarNet sources
- Set up and deployed the Python backend server to handle API requests and integrate with the Groq LLM
- Contributed to prompt engineering and system logic for accurate AI responses
- Collaborated with the frontend developer to ensure seamless assistant-user interaction

Impact: Delivered a functional assistant prototype capable of reducing support burden by automating responses to common customer queries, showcasing AI integration potential for telecom services.

Hackathon Participant **Mar 2024**
Artificial Intelligence Hackathon, Mediacor, Chișinău

Subject: Detecting deepfake content using AI and computer vision technologies
Project: Deepfake Detector extension for browser
Summary: Built a deepfake image detection system using a custom CNN model trained on a Kaggle dataset. The system classified manipulated images based on facial features and was extended into a working Chrome Extension that processed YouTube video streams in real time, sending frames to a backend API and returning a deepfake probability score.
Technologies Used: Python, TensorFlow/Keras, OpenCV, NumPy, Image preprocessing, data augmentation, Custom CNN architecture (2 convolutional layers, 64 filters, 3×3 kernel), Google Chrome Extension (JavaScript frontend + Python backend API)
My Role:

- Fully responsible for the entire development process, as the rest of the team had backgrounds in journalism and no programming experience
- Sourced and prepared the dataset from Kaggle
- Implemented image preprocessing and normalization (100×100 grayscale)
- Designed, trained, and optimized the CNN model using TensorFlow
- Developed and integrated the Chrome extension with real-time backend inference
- Evaluated model performance and improved accuracy through data augmentation

Impact: Contributed to the field of digital security by enabling the detection of falsified media content, relevant in combating misinformation and media manipulation.

Hackathon Participant **Jun 2023**
Artificial Intelligence Hackathon, Mediacor, Chișinău

Subject: Predicting execution time for reports based on historical data and input parameters
Project: : Report Time Prediction
Summary: Developed a machine learning model that predicts the execution time of reports based on various input parameters. The dataset included start and end times, along with multiple influencing factors. The goal was to optimize report scheduling and resource allocation by accurately forecasting the required time for each report.
Technologies Used: Python, NumPy, pandas, scikit-learn.
My Role:

- Performed data cleaning and preprocessing to prepare the dataset for modeling
- Contributed to the development and fine-tuning of the prediction model
- Collaborated with the team to analyze model results and improve accuracy

Impact: Improved the efficiency of resource planning and workload distribution by enabling accurate time predictions for report generation. Additionally, the system allowed users to be notified in advance about the estimated waiting time, enhancing transparency and user experience.

Hackathon Participant **Mar 2023**
Data Science Hackathon 2023, Tekwill, Chișinău

Subject: Perception of foreign tourists and the Moldovan diaspora about the Republic of Moldova as a tourist destination
Project: : Tourist Spending Estimator for Moldova
Summary: Built a mobile app that estimates the potential spending of foreign tourists and diaspora visitors in Moldova, based on variables such as age, country of origin, and travel profile. A linear regression model was developed to generate accurate spending predictions, aiming to provide insights that support Moldova’s development as a data-driven travel destination.

My Role:

- Contributed core ideas for the app concept and use case
- Helped clean and preprocess data for the regression model
- Created data visualizations (charts) to support analysis and presentation
- Collaborated on the design of the mobile app interface
- Participated in the project presentation and pitching session

Impact: Provided valuable insights into tourist behavior and spending patterns through data-driven predictions, helping tourism stakeholders make informed decisions. The tool has the potential to assist policymakers and local businesses in tailoring services, marketing strategies, and infrastructure investments to better suit the needs of different visitor groups.

Hackathon Participant **Dec 2022**
Hackathon 25 ans ensemble, UTM, Chișinău

Subject: Choosing one of the 17 Sustainable Development Goals and building a solution that supports it
Project: : Eco-Label Scanner Mobile App
Summary: Developed a mobile app prototype in Figma that scans eco-labels on consumer products, helping users quickly understand their meaning and make responsible, sustainable purchasing decisions. The solution supported several UN Sustainable Development Goals, including SDG 12 (Responsible Consumption), SDG 13 (Climate Action), SDG 3 (Good Health), and SDG 17 (Partnerships).
My Role:

- Designed and built the full app prototype in Figma
- Contributed to UX/UI decisions to ensure a user-friendly and educational experience
- Participated in team discussions to align the app's features with SDG objectives

Impact: Empowered consumers to make environmentally responsible choices by providing instant, accessible information about eco-labels. The app encourages ethical consumption and promotes market transparency, supporting the transition toward a more sustainable economy and helping to raise awareness about eco-friendly products and certifications.

PROJECTS

LinkedIn Outreach Automation

🔗project overview

Overview: Developed a production-grade LinkedIn automation system that runs 24/7 in a Dockerized backend, using a local SQLite database for persistence and a unique VNC/noVNC visual monitoring layer for live observation of automation tasks.

Key features:

Full-stack automation
Queue targeted searches with granular filters, execute stealth browsing, send personalized connection requests, follow-up messages, and auto-withdraw stale invitations.

Live visual monitoring

VNC/noVNC integration allows users to watch the automation in real time, even when running headlessly in Docker.

Dynamic configuration
Adjustable operational parameters including working hours, daily limits, and human-like randomized timeouts

Template engine
Supports dynamic variables ({{name}}, {{company}}, {{search}}) for connection notes and multi-stage outreach messages

Background operation & reliability
Docker containerization ensures continuous execution with state persistence in SQLite; includes Windows .bat scripts for deployment, backups, and management.

Workflow Details

1. Queue targeted searches with granular filters.
2. Validate safety limits and working hours.
3. Execute stealth browsing with randomized human-like delays (default 4–7 minutes between actions).
4. Send personalized connection requests using dynamic templates.
5. Monitor acceptance status in real time.
6. Trigger automated follow-up outreach messages.
7. Auto-withdraw stale pending invitations after 7 days.

Tech Stack
Node.js, Docker, VNC/noVNC, SQLite, Puppeteer Stealth, Xvfb (Virtual Framebuffer), Shell & Batch Scripting, React, TypeScript

Impact
Created a reliable, fully autonomous LinkedIn automation platform that remains observable and configurable, enabling high-scale networking while maintaining safety, compliance, and user-friendly monitoring.

AI Video Editor Timeline Zoom

🔗project overview

Overview: Designed and implemented a production-grade timeline zoom system for Videfy.ai's web-based AI video editor, delivering precise playhead anchoring and professional-grade stability in complex browser timelines.

Key features:

Playhead-anchored zoom:
Ensures precision editing by anchoring zoom operations to the playhead during high-frequency interactions.

CapCut-style UX behavior

CapCut-style UX behavior: Differentiated zoom behavior for mouse wheel versus slider, benchmarked against professional video editors.

Flicker-free UI updates
Uses RequestAnimationFrame and throttled layout calculations to maintain smooth visual feedback.

Background operation & reliability
Docker containerization ensures continuous execution with state persistence in SQLite; includes Windows .bat scripts for deployment, backups, and management.

Tech Stack
React, MobX, RequestAnimationFrame, CSS Variables, Lodash (Throttle), Custom Hooks, Singleton Architecture, UX Benchmarking

Impact
Resolved unstable timeline zoom behavior and playhead desynchronization, improving editor usability and perceived quality, enabling Videfy.ai to support advanced editing workflows and bringing the product closer to professional desktop-grade video tools.

StableMetal NFT Staking Platform 🔗project overview

Overview: Contributed to the development and stabilization of a high-performance Web3 platform on the TON blockchain, focused on NFT staking and jetton management. The platform combines DeFi mechanics with a premium, animation-rich user experience and interactive 3D elements.

Key features:

- Refactored core frontend architecture to improve scalability and maintainability.
- Fixed critical resource claiming logic affecting NFT staking flows.
- Improved reliability of TON wallet connections via TonConnect.
- Integrated interactive 3D models using Three.js and @react-three/fiber.
- Implemented advanced GSAP animations for premium UI interactions.
- Resolved complex z-index and modal stacking issues across responsive breakpoints.
- Improved mobile responsiveness, including dynamic video URL handling.

Tech Stack
Next.js, React, TypeScript, TON Blockchain, TonConnect, Three.js, @react-three/fiber, GSAP, Tailwind CSS, Drizzle ORM, Docker

Impact
Stabilized critical staking and claiming flows, significantly improving user trust and platform reliability. Elevated the perceived quality of the product through premium animations and 3D interactions, helping position StableMetal as a high-end Web3 experience rather than a typical DeFi interface.

NoDent PDR Landing Page

🔗project overview

Overview: Designed and developed a high-performance, SEO-optimized multilingual landing page for NoDent PDR, a premium Paintless Dent Repair service. The project focuses on conversion, speed, and brand positioning through a sophisticated dark UI with metallic accents and a performance-first architecture.

Key features:

Premium UI & branding

Dark, automotive-inspired design with metallic gold accents and responsive layouts.

Multilingual support

Custom dictionary-based i18n system supporting Romanian, English, and Russian.

Video-heavy performance optimization

Custom YouTube gallery using facade/lazy-load techniques to preserve fast LCP and low JS payload.

SEO & local visibility

Full SEO optimization including Hreflang, canonical URLs, and Schema.org structured data (AutoBodyShop, FAQPage).

Tech Stack

Next.js (App Router), TypeScript, Tailwind CSS, Radix UI, Lucide React, Embla Carousel, Custom i18n, SEO (Hreflang, JSON-LD), Vercel Analytics

Impact

Delivered a fast, visually premium landing page that improves local search visibility, supports multilingual audiences, and maintains high performance despite heavy video content—strengthening NoDent PDR's digital presence and conversion potential.

AI Imagen Telegram Bot

🔗project overview

Overview: Built a production-ready micro-SaaS Telegram bot for AI image generation, integrating payments, subscriptions, and secure webhooks. The system delivers AI-generated images directly in Telegram while ensuring reliability, scalability, and persistent user data management.

Key features:

AI image generation
Uses a third party api with template-based prompts and reference images.

Payments & subscriptions

Secure one-off and subscription payments via PayPal and LemonSqueezy.

Persistent data layer:
User profiles, references, jobs, and transactions stored in Supabase.

Production-grade deployment
Webhook mode for production (Gunicorn/WSGI on Render) and polling mode for local development.

Workflow Details

1. User selects a generation template from the catalog.
2. User uploads reference images (persistent or job-scoped).
3. User customizes prompt, seed, and generation parameters.
4. Optional preview and variations (re-roll, upscale, overlays).
5. Payment or subscription checkout via PayPal or LemonSqueezy.
6. Webhook validates cryptographic signature and confirms payment.
7. Replicate job executes asynchronously with selected template and references.
8. Final image is delivered in Telegram and logged in Supabase.

Tech Stack
Python, Flask, Telegram Bot API, AsyncIO, Replicate API, Supabase, PayPal Webhooks, LemonSqueezy, Gunicorn/WSGI, Render

Impact
Delivered a fully monetized AI micro-SaaS inside Telegram, enabling scalable AI image generation with secure payments, subscription support, and production-grade reliability.

DonutPlum – Restaurant Management System (CEO & co-founder) 🔗project overview

Overview: Founded and developed a complete restaurant management ecosystem — a full-stack automation platform with backend services, a PWA dashboard for staff, and a client-facing ordering app, built to streamline real-time coordination between kitchen, bar, and customers.

Key features:

Backend (Node.js, TypeScript, MySQL, Express):

- Built a full REST API for restaurants, products, categories, and orders.
- Implemented JWT authentication for staff and customers.
- Added cross-selling logic, batch operations, and robust validation middleware.
- Integrated real-time notifications for staff through backend event triggers.
- Designed database migrations with strict data validation and security layers.

Staff Frontend (React, TypeScript, MobX State Tree, Shadcn/UI, PWA):

- Developed a progressive web dashboard for menu, order, and product management.
- Added real-time order updates, drag-and-drop uploads, and batch editing tools.
- Used MobX State Tree for scalable and reactive state management.

Client Frontend (Next.js, TypeScript, SEO-Optimized):

- Created an interactive ordering platform with dual-mode security:
  - View Mode: browse-only experience (anti-spam).
  - Interactive Mode: QR-based session for secure ordering and communication.
- Integrated real-time order tracking and mobile-first design.

Business & SaaS Layer:

- Designed and launched the DonutPlum B2B SaaS platform for digital menu and order management.
- Developed a Next.js landing page with contact and lead forms integrated via Zoho Mail.
- Configured a custom domain and personalized business email for professional client outreach.
- Implemented analytics and conversion tracking to monitor performance and engagement.

Tech stack: Node.js, TypeScript, Express.js, MySQL, React, Next.js, MobX State Tree, JWT, REST API, WebSocket, Docker, SEO Optimization, PWA Notifications, Zoho Mail.

Impact: As CEO & co-founder, delivered a production-ready restaurant management system exceeding 10K lines of code, optimized for scalability, real-time operation, and security.
Introduced an innovative anti-spam dual-mode ordering system and built a fully functional B2B SaaS product with professional infrastructure and automated lead management.

Automated Quiz Video Generator

Overview: Developed an end-to-end automation system for creating and publishing educational English quiz videos on TikTok and YouTube Shorts, transforming theme-based inputs into fully produced content via AI-driven workflows.

Key features:

- AI-powered content generation: Uses Groq to create quiz prompts, answers, and abbreviations; supports thematic quizzes (e.g., "What is this?" or "Who is this?") with dynamic cooldowns and reveals. Image sourcing and processing: Automates fetching from Google, Unsplash, Pixabay, or Freepik APIs
- with enhanced search capabilities; auto-selects optimal images and optional background removal via rembg for clean visuals. Video and audio synthesis: Generates voiceovers with Groq or ElevenLabs TTS; assembles videos with text animations, transitions, and synchronized audio using FFmpeg.
- Scalable publishing: Direct API integration for posting to TikTok, YouTube Shorts, and Telegram bots; queue-based processing for batch operations. User-friendly UI: Web interface for theme selection,
- custom question/intro/CTA editing, enhanced search options, auto-removebg toggles, image auto-selection, configuration, and real-time monitoring of automation pipelines.
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Tech stack: Python, React, TypeScript, FFmpeg, Groq API, ElevenLabs API, rembg, REST APIs (Google Search API, Unsplash, Pixabay, Freepik), TikTok API, YouTube API, Telegram Bot API, Threading, Queue Management

Impact: Automated 90% of quiz video production, reducing creation time from hours to minutes; supports daily output of 10-20 videos; scalable architecture handles high-volume content for social media growth.

AI News Automation 🔗project overview

Overview: Developed a fully automated system that extracts news from Moldovan sources, generates AI summaries and images, and posts to Instagram on a schedule with human-like behavior.

Key features:

- News extraction & summarization: Fetches latest articles and generates AI summaries via Groq API.
- Image generation & processing: Creates visuals with Blinkshot and applies custom templates.
- Human-like posting: Randomized delays, user agent rotation, cookie/session persistence, and duplicate prevention.
- Autonomous workflow: Runs via startup script with exponential backoff for errors and dynamic posting frequency.

Tech stack: Python, Groq API, Blinkshot, Instagram API, LLM Integration, Web Scraping, Automation Scripts

Impact: Achieved fully autonomous news posting with minimal supervision, maintaining natural posting patterns, preventing duplicate content, and eliminating manual social media management.

Parser & Aggregator 🔗project overview

Overview: Developed a full-stack solution that aggregates product data from multiple e-commerce websites, automating data extraction, filtering, and comparison to enable smarter purchase decisions.

Key features:

- Data scraping & aggregation: Uses Selenium and BeautifulSoup to extract product information from multiple online stores.
- Filtering & sorting: Automatically organizes products based on price, rating, availability, and other criteria.
- Real-time updates: Provides live progress feedback via WebSocket/Socket.IO.
- Frontend interface: Responsive and intuitive UI built with React, TypeScript, and Vite for easy product comparison.
- Automation & deployment: Dockerized for easy setup and reliable operation.

Tech stack: Python, Flask, Selenium, BeautifulSoup, React, TypeScript, Vite, Socket.IO, WebSockets, Docker

Impact: Streamlined the process of comparing products across multiple stores, reducing manual research time and enabling informed purchasing decisions.

Document Scanner 🔗project overview

Overview: Developed a sophisticated document cropping and processing application that automates document digitization, improves image quality, and prepares documents for OCR and archiving. The system features multi-file upload, real-time editing, background processing, and PDF export.

Key features:

- Frontend processing: Real-time image manipulation using React, TypeScript, and Canvas API, with interactive crop adjustment, dynamic handle radius, rotation, filtering, and loupe tool. Background
- binarization: AI-powered processing pipeline with progress tracking via EventSource; intelligent caching for filter combinations. Backend & GPU optimization: Dockerized TensorFlow environment
- with NVIDIA runtime; image slicing, 4-directional augmentation, neural network processing, post-processing, and export to PNG/PDF. Model training & AI: Modified U-Net with frozen MobileNetV2 encoder, extensive data augmentation (flips, hue, synthetic blur), isotonic regression calibration,
- and 8-way test-time augmentation for robust inference. Export & integration: Supports multiple formats (SavedModel, H5, TensorFlow.js) and REST API integration for scalable usage.

Tech stack: React, TypeScript, Canvas API, OpenCV.js, Web Workers, EventSource, TensorFlow, PDF Generation, REST API, Image Processing

Impact: Automated high-quality document scanning and binarization, enabling efficient multi-file processing, improved OCR results, and reliable PDF export, fully optimized for GPU acceleration and large-scale batch operations.

Brain Tumor Segmentation 🔗project overview

Overview: Developed a U-Net based deep learning system that automatically segments brain tumors in MRI scans, providing accurate delineation of tumor regions to assist medical diagnostics.

Key features:

- Deep learning model: U-Net architecture with batch normalization for stable training.
- Custom loss function: Combines binary cross-entropy and Dice coefficient to balance pixel-wise accuracy with structural similarity.
- Workflow: Preprocess MRI images, generate binary masks, train model, evaluate performance, and visualize predictions against ground truth.
- Automation & accuracy: Reduces manual segmentation time and improves precision in tumor boundary identification.

Tech stack: TensorFlow, Python, U-Net Architecture, Convolutional Neural Networks, Image Segmentation, Batch Normalization, Custom Loss Functions

Impact: Enabled precise and efficient tumor segmentation on unseen MRI scans, supporting faster medical analysis and potentially improving diagnostic outcomes.

AI Support Chat 🔗project overview

Overview: Developed a customer support platform that integrates AI assistance with human operator capabilities, processing JSON knowledge bases to deliver intelligent, multilingual responses with real-time escalation when needed.

Key features:

- AI-powered support: Uses NLP, content moderation, and sentiment analysis to determine intent, urgency, and when human intervention is required.
- Multilingual responses: Supports Romanian, Russian, and English, with expandable knowledge base in JSON format.
- Real-time communication: WebSocket architecture ensures live chat sessions with automatic reconnection, message queuing, and conversation persistence.
- Seamless AI-human handoff: Routes complex or emotionally charged inquiries to operators with full conversation context.

Tech stack: React, Python, FastAPI, WebSockets, AI Integration, Sentiment Analysis, Content Moderation, Multilingual Support

Impact: Reduced support staff workload by automating routine inquiries while maintaining high-quality customer service, ensuring complex issues are promptly escalated to human operators.

LANGUAGES

Romanian - native
Russian - native
English - B1
French - studied in school from 1st to 9th grade