

Zakhar Pashkin

Senior ML Engineer | Computer Vision, Document AI & Agentic Systems

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Senior ML Engineer with 8+ years developing computer vision and applied ML from research through deployment. Shipped food-recognition and OCR workflows at Carb Manager and built financial-document recognition at CFT. Delivered skin-analysis models, multimodal retrieval and a published model-profiling SDK. Currently in Riverstart's R&D ML team, developing document AI and 3D geometry workflows.

EXPERIENCE

Senior ML Engineer

Riverstart | Jul 2026 - Present

R&D ML | Remote

- Develop and evaluate an on-premises document assistant for specialist case review, separating deterministic checks from model explanations. Build construction-plan analysis with structured quantities; link both workflows to source pages.
- Prototyped point-cloud reconstruction of axis-aligned rooms, producing semantic 3D models and DXF/SVG floor plans. Evaluate mechanical scan registration against reference CAD and CAD-to-drawing projection.

ML / Computer Vision Engineer

Dermaself · Agnitra · Multimodal Video Search | Jun 2024 - Jun 2026

Remote

- Developed Dermaself's skin-analysis pipeline from guided capture and facial regions through pore/wrinkle segmentation and mobile/API integration. Restored matching wrinkle outputs across cloud and GPU runtimes in regression checks.
- Developed multimodal video search combining speech, on-screen text and visual signals. Delivered Qdrant hybrid retrieval with BM25 and dense embeddings, supported by evaluation and runtime profiling.
- Built Agnitra, a Python SDK and CLI for model profiling and inference optimization, with runtime telemetry, model graph representations and benchmark workflows. Published the package on PyPI.

[Agnitra on PyPI](#) | [Video search](#) | [Dermaself](#)

Senior Computer Vision Engineer

Wombat Apps LLC / Carb Manager | Jun 2022 - Jun 2024

Remote

- Shipped food-recognition and nutrition-label workflows across cloud, iOS and Android for Carb Manager, a nutrition product serving millions of customers.
- Combined detection, OCR and table parsing to turn nutrition-label images into structured nutrition data. Owned data preparation, model evaluation, API integration, mobile export and runtime profiling with mobile, backend and product teams.

EARLIER EXPERIENCE

Computer Vision Engineer

Center of Financial Technologies (CFT) | Jun 2019 - Jun 2022

Financial technology

- Built core detection, segmentation and OCR models for CFT's financial-document recognition platform using PyTorch and OpenMMLab. Developed active-learning and assisted-annotation workflows to reduce manual labeling.
- Optimized meter-recognition models for mobile use through architecture changes, quantization and runtime profiling. Mentored engineers on data quality and evaluation.

Machine Learning Specialist & Project Mentor

School of AI | Oct 2018 - Oct 2019

Part-time community program

- Built ML learning software, coordinated remote contributors and mentored applied CV projects from dataset definition through evaluation and working demos.

SELECTED PROJECTS & RESEARCH

InQuest | Project-aware document agents

Built document agents with project-specific source routing and output storage using OpenAI Agents SDK and MCP. Added evaluation scenarios for retrieval selection and saving behavior.

Calorio | Maintained service

Built and maintain a Telegram AI nutrition service for meal logging from photos, voice and text, with a food diary and nutrition-goal tracking.

LigninQC | Research tooling | In progress

Built a reproducible literature-discovery and audit pipeline for computational lignin research, with publication-version grouping and traceable extraction schemas.

TECHNICAL EXPERTISE

Computer vision: Python, PyTorch, OpenMMLab (MMEEngine, MMCV, MMDetection, MMSegmentation, MMOCR), OpenCV, YOLO, OCR, segmentation, CLIP/VLMs, ONNX Runtime, Core ML

LLMs & agents: LangGraph, LangChain, OpenAI Agents SDK, MCP, Pydantic, LlamaIndex, RAG, Qwen/vLLM, Qdrant, Neo4j, pgvector, tool calling, evaluation and human review

ML systems: FastAPI, PostgreSQL, Redis, Docker, Kubernetes, AWS/GCP, Cloud Run, GitLab CI/CD, GitHub Actions, MLflow/ClearML, Prometheus/Grafana

EDUCATION

Siberian Federal University | Computer Science & Microelectronic Engineering | 2007-2012