

# Raphael-Donatus Kirchgäßner

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## PROFILE

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A self-driven professional with a proven record spanning business information systems, precision oncology, and applied AI. Transitioned to the U.S. for a PhD, founded two self-sustaining companies, and built production ML systems across healthcare, audio, and education verticals. Combines deep technical expertise with strategic execution and cross-functional leadership.

## WORK EXPERIENCE

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### Head of AI

Feb 2026 – Present

*ISTEC · Karlsruhe-Durlach, Germany*

- Developed and drove company-wide AI strategy, aligning business objectives with emerging AI capabilities
- Defined the healthcare sector strategy, identifying digital health market opportunities
- Led AI workshops and enablement programs, upskilling cross-functional teams on AI tools and methodologies
- Managed AI project delivery from scoping through implementation; supported business development via AI-focused sales outreach

### AI Software Engineer (PhD Researcher)

Sep – Dec 2025

*Oregon Health & Science University · Portland, OR*

- Lead developer and maintainer of EmbKit, a PyTorch-based ML library for learning embedding spaces under explicit constraints
- Designed prebuilt VAE architectures and a flexible API supporting rapid prototyping and custom model development
- Expanded library scope toward multimodal ML; enabled patient similarity analysis via vector database workflows

### Partner

May 2022 – Present

*AnoBrain · Portland, OR*

- Built ScheduleGenius, an AI-driven academic scheduling tool reducing administrator time by 70%
- Delivered Divey, a mobile app integrating OpenAI's API to interpret and summarize buoyancy calculations
- Developed PhD Tracker, a student progress platform with LLM API integration and RAG workflows

### CIO & Co-Founder

Feb 2021 – Present

*Origin Audio LLC · Portland, OR*

- Designed and implemented IT infrastructure on Azure Cloud, including Stripe API for secure payment processing
- Built scalable ML-based audio processing pipelines and automated client delivery workflows
- Trained and deployed audio classification models to automate instrument sorting

### Graduate Researcher

Sep 2019 – Aug 2025

*Oregon Health & Science University · Portland, OR*

- Developed predictive ML models for patient therapy response classification using high-dimensional multi-omics data
- Applied VAE, AE, and LGBM architectures to uncover molecular features associated with treatment efficacy
- Researched multimodal data integration and vector-database similarity metrics for holistic patient profiling
- Developed novel imputation strategies for multiplex tissue imaging data

## EDUCATION

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### PhD · Machine Learning / Precision Oncology

2019 – 2025

Oregon Health & Science University · GPA 3.88 · EQF Level 8

*Thesis: Machine Learning for Biological Inference Across Spatial, Multimodal, and Clinical Dimensions in Precision Medicine*

### BSc · Business Information Systems

2013 – 2017

Hochschule Karlsruhe (HKA) · Grade 2.1 · EQF Level 6

*Thesis: Geolocation Framework for Customer Acquisition*

## PUBLICATIONS

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Predicting anti-PD-1 immune checkpoint blockade response in melanoma patients with spatially aware machine learning models

*NPJ Precision Oncology · 2026 · Pybus, Kirchgaessner et al.*

Aggregating multimodal cancer data across unaligned embedding spaces maintains tumor of origin signal

*BioRxiv · 2025 · Kirchgaessner, Keutler, Sivakumar et al.*

Imputing single-cell protein abundance in multiplex tissue imaging

*Nature Communications · 2025 · Kirchgaessner, Watson, Creason et al.*

SyntheVAEiser: augmenting traditional machine learning methods with VAE-based gene expression sample generation

*Genome Biology · 2024 · Karlberg, Kirchgaessner et al.*

## SKILLS

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### ML / AI

PyTorch · TensorFlow · Keras · VAE / AE · LLMs · RAG · MLflow · Scikit-learn

### CLOUD & INFRA

Azure · Docker · Git / CI · Linux · Microservices

### DATA & BACKEND

Python · SQL / NoSQL · REST / GraphQL · NumPy · Postman · C#

### FRONTEND & MOBILE

TypeScript · Angular · Ionic · Bootstrap · HTML

### DOMAIN

Precision Oncology · Spatial Proteomics · Biomedical Engineering · Digital Health

### LEADERSHIP

AI Strategy · Project Management · Team Enablement · Business Dev

## LANGUAGES

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**German** Native   **English** C2 Proficient