

# Lucas Kuzma

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## SUMMARY

Engineering and research leader with deep experience bridging ML research and production systems. Background spans applied ML (computer vision, generative models, diffusion pipelines), cloud-native platform architecture, and team leadership across startups and R&D-driven environments. Proven track record of rapid prototyping, translating theoretical ideas into empirical results, and building research tooling stacks from scratch. Comfortable defining technical direction, designing experiments, and managing engineers from recruitment through execution.

Based in Berlin, location flexible. Can legally work in the US and EU.

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## EXPERIENCE

### Head of Research and Engineering (3D and ML)

*Graswald · Berlin · 2024 – present*

Led applied ML research and product engineering for generative imaging. Drove iterative experimentation across diffusion models, LoRA fine-tuning, and conditioning strategies.

- Directed applied ML research for generative apparel imaging (VTON, pose-guided synthesis, garment transfer), defining hypotheses, designing experiments, and establishing evaluation protocols.
- Built and refined multi-stage ML pipelines combining pose estimation, garment alignment, and diffusion-based rendering; improved realism and consistency through systematic ablation and benchmarking.
- Ran extensive LoRA experimentation to adapt base diffusion models for domain-specific generation, including style transfer, identity preservation, and texture fidelity.
- Evaluated and integrated multiple inference providers (Fal, Replicate, Modal), optimizing for latency, cost, and reliability across batch and near-realtime workflows.
- Designed dataset pipelines: sourcing, filtering, augmentation, and synthetic data generation to improve robustness across varying inputs.
- Primary decision-maker for model selection and architecture tradeoffs, grounding choices in empirical testing rather than published benchmarks.
- Translated loosely defined product requirements into concrete ML experiments with measurable outcomes.
- Drove rapid prototyping loops, unblocking team members and maintaining momentum across parallel research tracks.
- Coordinated across engineering and product to integrate ML outputs into shipped capabilities.

## **Director of Engineering**

*TIER Mobility · Berlin · 2022 – 2024*

Managed product engineering for the consumer app and back-end services, overseeing ~25 engineers and leads across six cross-functional teams.

- Led, mentored, and grew an organization of managers and engineers; handled recruitment, supervision, and evaluation.
- Defined and communicated technical strategy and roadmap with senior management.
- Defined and monitored KPIs for delivery, infrastructure, and operational performance.
- Reviewed and optimized engineering budget; managed external vendors.

## **Engineering Manager**

*Fantasma · Berlin · 2021 – 2022 (exit to TIER)*

Managed product, platform, and infrastructure engineering at a computer vision startup. Bridged ML research teams and production engineering.

- Recruited and managed product and platform engineering teams in a fast-moving R&D environment.
- Collaborated with ML teams to translate computer vision research into production-grade products and APIs.
- Architected globally-distributed, containerized, scalable AWS infrastructure (Terraform, ECS, Fargate, Aurora, Redis).
- Designed protocols for observability, data resiliency, and continuous delivery with automated testing.
- Spearheaded development of internal mobile apps, public SDKs, and APIs.

## **CTO**

*Jambl · Berlin · 2019 – 2020*

Led engineering for a heavily-trafficked music creation app at this early-stage startup. Full ownership of technical direction, team building, and infrastructure.

- Expanded and managed the engineering team across iOS, Android, and back-end.
- Established development process, CI/CD pipelines, A/B testing, and analytics.
- Architected Django back-end infrastructure with legacy Firebase integrations on GCP.

## **Founder**

*The Strange Agency · Los Angeles · 2009 – 2019*

Founded and ran a consultancy building applications for web and iOS. Clients included Disney, Adobe, eBay, IBM, Hewlett Packard, and Yamaha, working with agencies such as Goodby Silverstein & Partners, TBWA\Chiat\Day, and Huge.

- Recruited and managed small engineering teams; estimated LOE, timelines, and staffing.
- Created a series of audio apps generating over 1 million downloads, applying DSP and audio synthesis.
- Architected cloud-based e-commerce and retail platforms across AWS, GCP, and Heroku.

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## ACADEMIC EXPERIENCE

### Lecturer

*School of International Art · Beijing · 2022*

Designed and led an Introduction to Generative Design course, teaching designers to code through graphics programming.

### Adjunct Professor

*University of Southern California · Los Angeles · 2011 – 2012*

Taught intermediate game programming to graduate and undergraduate students.

### Researcher

*Universitat Pompeu Fabra · Barcelona · 2007*

Developed interfaces for concatenative synthesis with the Music Technology Group.

### Teaching Assistant

*University of California, Los Angeles · 2002 – 2004*

Courses: Design and Society, Senior Project, Design Culture, Creative Use of the Internet, Games and Art.

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## EDUCATION

### MS Information, Communication and Audiovisual Media Technologies (Machine Learning for Music Information Retrieval)

Universitat Pompeu Fabra · Barcelona, Spain

### MFA Design | Media Art

University of California, Los Angeles

### BS Computer Science (AI minor)

Case Western Reserve University · Cleveland, OH

### BA Philosophy

Case Western Reserve University · Cleveland, OH

*Additional: Fast.ai Practical Deep Learning for Coders · Udacity Introduction to Machine Learning*

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## SKILLS

### Languages

Python, C++, C, Swift, Objective C, JavaScript, TypeScript, SQL, Processing

### ML & Research

Diffusion models, LoRA fine-tuning, computer vision, pose estimation, generative AI, music information retrieval, neuroevolution, CTRNNs, spiking neural networks, dataset pipeline design, experiment design, model evaluation

### Frameworks

FastAPI, Django, Flask, React, React Native, Angular

### Platforms & Infrastructure

AWS, GCP, Azure, Docker, Terraform, Heroku