Michael Gygli, Ph.D.

Senior ML engineer & researcher, Startup CTO, Google & YCombinator alumn

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Skills and Diploma

Diplomas	**Doctor of Science** (Dr. sc. ETH Zurich), ETH Zurich **M.Sc. Computer Science** "mention bien" (with high honors), University of Nice Sophia-Antipolis Swiss Federal VET Diploma in Information Technology
Coding	Python (expert), JavaScript / TypeScript (fluent), Bash (fluent), LaTeX(fluent), Java (prior experience), C++ (prior experience), MATLAB (prior experience)
Tools	ML stack: PyTorch, TensorFlow, MLFlow, ClearML, Pandas, scikit-learn, OpenCV Infrastructure: Google Cloud, Docker, GitHub CI/CD, Git, Linux admin, basic networking (VPN, etc.), ffmpeg, Kafka
Soft skills	Solving complex open-ended problems, hiring and managing a developer team, applied ML research, paper writing, paper reviewing (CVPR, ECCV, ICCV, etc.), data analysis, software design, project management, critical thinking
Languages	German (bilingual), English (bilingual), French (rusty)
Open Source	Release of research code, contributions to Lasagne and MoviePy

Professional Experience

2021/03 – today	**Co-Founder & CTO,** Cerrion AG, Zurich, Switzerland 1. Built data collection systems and ran annotation campaigns 2. Implementation of the initial pipeline for 24/7 real-time video streaming and analysis with neural networks (ffmpeg+pytorch) 3. Built and led the backend/CV team (6 people), interviewed 50+ candidates 4. Served as a technical lead, setting directions, doing code reviews, assuring quality, mentoring junior team members, writing research papers/patents 5. Consulting manufacturing companies on Computer Vision solutions 6. Got into YCombinator (acceptance rate: 1%), the most prestigious startup accelerator in the world and raised investment from multiple renowned VC firms ‹/› Python, PyTorch, JavaScript / TypeScript , Google Cloud, Docker, GitHub CI/CD, FFmpeg, Kafka, MLFlow, ClearML, Kafka, scikit-learn, Pandas, Prometheus/Grafana, Jinja
2018/2 – 2021/2	**Research Scientist,** Google Research, Zurich, Switzerland 1. ML research, worked on interactive segmentation, multi-modal annotation and self-improving algorithms 2. Significantly shaped the lifelong-learning research line in the team 3. Supervised two Ph.D. interns 4. Filed for patent and published at top venues: PAMI, IJCV, CVPR, ECCV, AAAI ‹/› Python, TensorFlow, JavaScript / TypeScript , Google Cloud, scikit-learn, OpenCV, Pandas

Professional Experience (continued)

2017/1 — 2017/12   **Head of Artificial Intelligence,** Gifs.com, San Francisco, USA and Zurich, Switzerland

1. Deployed several projects to production, most notably automatic highlight detection and video object segmentation
2. Built and led the Machine Learning team
3. Research on video understanding; wrote & published multiple papers

</> Python, TensorFlow, Google Cloud, Docker, scikit-learn, OpenCV, FFmpeg, MoviePy

2016/8 – 2016/11   **Software Engineering Intern,** Google Brain, Mountain View, CA

1. Research on energy-based models for structured prediction
2. Published the developed method to ICML

</> Python, TensorFlow, scikit-learn, OpenCV

2015/7 – 2015/11   **Intern Research Scientist,** Yahoo Labs, New York, NY

1. Research on video highlight detection
2. Published the developed method to CVPR

</> Python, Lasagne/Theano, scikit-learn, OpenCV

2009/8 – 2011/2   **Software developer,** PostFinance, Die Schweizerische Post

</> Java, Ada

Education

2023/8 – today   **NLP / LLM self-study,** Online

1. Self-study of "Speech and Language Processing" by D.Jurafsky and J. Martin
2. Udemy course on "Natural Language Processing with Python"
3. Toy project on retrieval-augmented conditional generation with LLMs.

</> Python, Async IO, Flask, Jinja, Google Cloud Functions, Diverse APIs, (OpenAI, weather data, etc.)

2022/7 – 2022/9   **YCombinator accelerator program**, San Francisco
Education on company-building: product development, customer acquisition, scaling, marketing, fundraising

2012/12 – 2017/5   **Ph.D., Computer Vision Laboratory,** ETH Zurich, Switzerland
Thesis title: *Interest-based video summarization via subset selection*

1. Conducted research in video analysis, trained deep neural networks
2. Wrote and published 12 research papers at top venues
3. Supervised several master student projects

</> Python, C++, Matlab, Theano, Caffe, Lasagne, TensorFlow, scikit-learn, OpenCV

2011/9 – 2012/9   **M.Sc. Computer Science,** University Nice Sophia-Antipolis, France
Specialization: *Vision / Image Processing*
Master thesis at ETH Zurich. Thesis title: *On Feature Encoding for Binary Descriptors*

</> C++, Java

2009/9 – 2011/8   **Undergraduate studies in Computer Science,** Bern University of Applied Science, Switzerland

</> Java, C++, C, HTML, JavaScript

2007/8 – 2019/7   **Federal VET in Information Technology (Way-Up),** Die Schweizerische Post

</> Java, HTML, JavaScript

Patents, Publications and Talks

Patents   🔖   **1 approved US patent** and 3 Computer Vision and Machine Learning patents pending

Publications   🔖   **30+ research publications** with **2600+ citations** and an **h-index of 18**.

A full list is available on my Google Scholar page:
`https://scholar.google.com/citations?user=xpyADpwAAAAJ&hl=de`

Selected Publications

1   M. Gygli, J. Uijlings, and F. Vittorio, "Towards reusable network components by learning compatible representations," in *AAAI*, 2021.

2   T. Mensink, J. Uijlings, A. Kuznetsova, M. Gygli, and F. Vittorio, "Factors of influence for transfer learning across diverse appearance domains and task types," *PAMI*, 2021.

3   M. Gygli and V. Ferrari, "Efficient object annotation via speaking and pointing," *IJCV*, 2020.

4   T. Kontogianni, M. Gygli, J. Uijlings, and V. Ferrari, "Continuous adaptation for interactive object segmentation by learning from corrections," in *ECCV*, 2020.

5   M. Gygli, "Ridiculously fast shot boundary detection with fully convolutional neural networks," in *CBMI*, 2018.

6   M. Gygli, M. Norouzi, and A. Angelova, "Deep value networks learn to evaluate and iteratively refine structured outputs," in *ICML*, 2017.

7   S. Manen, M. Gygli, D. Dai, and L. Van Gool, "PathTrack: Fast Trajectory Annotation with Path Supervision," in *ICCV*, 2017.

8   N. Takahashi, M. Gygli, and L. Van Gool, "AENet: Learning deep audio features for video analysis," *IEEE Transactions on Multimedia*, 2017.

9   M. Gygli, H. Grabner, and L. Van Gool, "Video summarization by learning submodular mixtures of objectives," in *CVPR*, 2015.