# Jonas **Heinle**

## Information Scientist | Master of Science

github.com/Kataglyphis
linkedin.com/in/jonas-heinle-0b2a301a0
jotrockenmitlocken.de
cataglyphis@jotrockenmitlocken.de
youtube.com/@jotrockenmitlocken
Karlsruhe  German Citizen
Birthday: December 25, 1995 Schwäbisch Hall, Germany
+49 15678111689


"Wahrlich es ist nicht das Wissen, sondern das Lernen, nicht das Besitzen, sondern das Erwerben, nicht das Da-Seyn, sondern das Hinkommen, was den grössten Genuss gewährt." (Carl Friedrich Gauß)

I studied computer science at the Karlsruhe Institute of Technology, where I majored in computer graphics, geometry processing, anthropomatics and cognitive systems with a specific interest in deep learning. Currently, I am looking for the next big challenge after my studies.

## Experiences

**May 2023 – October 2022** | **Research assistant, Karlsruhe, CAS Software AG**
- providing user guidance in mixed reality applications
- using new machine learning approaches and eye tracking

Machine learning | Mixed reality | HoloLens2 | C# | Python

## Education

**September 2023 – April 2020** | **Master of Science Computer Science | Student, Karlsruhe, Karlsruhe Institute of Technology**
Overall grade: 1.9/ US-GPA: 3.1
- Thesis: Designing User-adaptive Guidance for Mixed Reality Using Eye Tracking

AI | Computer Graphics and Geometry Processing | Anthropomatics and Cognitive Systems

**March 2020 – October 2015** | **Bachelor of Science Computer Science | Student, Karlsruhe, Karlsruhe Institute of Technology**
Overall grade: 2.5/ US-GPA: 2.5
- Thesis: Temporally Stable Blue Noise Error Distribution in Screen Space for Real Time Applications

Path Tracing | Blue Noise

**2014 – 2006** | **Pupil | Higher education entrance qualification (A-levels), Schwäbisch Hall, Gymnasium bei St. Michael**
Overall grade: 2.2/ US-GPA: 2.8
- First steps in Procedural programming: Sudoku project
- Started learning Java autodidactically

Delphi | Pascal | Java

## Teaching and Mentoring

**August 2022 – October 2018** | **Technical computer science | Tutor, Research Assistant, Karlsruhe Institute of Technology**
- Teaching undergraduates in digital technology. This includes inter alias control units, run-time effects, computer arithmetic, boolean algebra, NAN/NOR gates, MOSFET, CMOS, Quine-McClusky, hazards, sequential circuit
- Teaching undergraduates in computer organization which includes inter alias c programming, caches, assembler, memory organization, DLX-pipelining, RAM, paging, segmentation

LaTeX | C | Assembler | MIPS | RISC-V

**August 2021 – January 2020** | **Mathematics | Tutor, Freelancer, Karlsruhe**
- Teaching pupils in mathematics

Mathematics

## Projects

### Renderer
2020-NOW

github.com/Kataglyphis/GraphicsEngineVulkan github.com/Kataglyphis/GraphicEngine

This projects provide me with a solid Vulkan/OpenGL starting point for implementing modern established rendering techniques and getting quickly started in own research topics.

CMake | C | C++ | Python | Vulkan | OpenGL

### Machine Learning Algorithms
2020 - NOW

github.com/Kataglyphis/MachineLearningAlgorithms

This project provides me a solid Machine Learning(ML) starting point for implementing modern established ML algorithms and getting quickly started in own research topics.

LaTeX | Python | R

### Designing User-adaptive Content for Mixed Reality Using Eye and Hand Tracking
2022-2023

github.com/Kataglyphis/Designing-User-adaptive-Content-for-Mixed-Reality-Using-Eye-and-Hand-Tracking

This work exhibits interrelationships between users' currently fixated objects, their eye, head, hand movement and users' intentions while doing a task. Based on these findings this work provides user-adaptive guidance for improved interaction quality between Mixed Reality environment and the user.

LaTeX | C♯ | Mixed Reality | Python | Unity

### Temporary Stable Blue Noise Error Distribution in Screen Space for Real Time Applications
2019 - 2020

github.com/Kataglyphis/BachelorArbeit

Tracing Rays and familiar techniques are currently gaining importance. Former papers had shown the effectiveness of blue-noise error distributions and their importance in increasing optical image quality. My work is building upon this findings and presents a temporary algorithm to find a blue noise error distribution in screen space.

LaTeX | C | C++ | Python

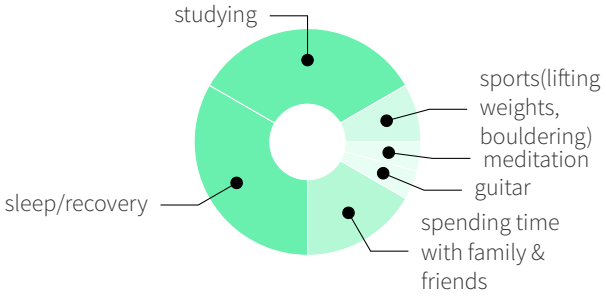
## Languages

- German
- English, level B2
- French, level B1
- Latin

## Hobbies

- Powerlifting
- Bouldering
- Guitar
- Philosophy
- Politics

## A Day of My Life




## International experience

- October 2012 - November 2012: Student exchange India, Mayo College Ajmer

## Volunteering

- February 1, 2015 - August 1, 2015: Federal Volunteers Service at AWO (worker welfare) in Schwäbisch Hall (delivering Meals on Wheels, various driving services, assisting a 16 year old boy with autism in school)

## Extracurricular courses/certificates

- Computer Graphics with Modern OpenGL and C++
- Learn the Vulkan API with C++
- Master Computer Vision OpenCV4 in Python with Deep Learning
- "Start in der Lehre" - tutor program at the Karlsruhe Institute of Technology (KIT): The aim of the program is to develop teaching skills alongside practice.
- Seminar on political education from the Federal Office for Family and Civil Society Tasks