

# Zöbelein Carolin

Josephsplatz 8, 90403 Nürnberg – Germany

☎ +49.160 / 3482513 • ✉ [contact@carolin-zoebelein.de](mailto:contact@carolin-zoebelein.de)  
PGP key: D4A7 35E8 D47F 801F 2CF6 2BA7 927A FD3C DE47 E13B

*Independent mathematical scientist*

## In a nutshell

---

Hi,

my name is Carolin and I'm an independent mathematical scientist. I work as freelancer on topics around it-security, decentralized networks, online privacy & anonymity and censorship circumvention with mathematical (Cryptography, Algebra, Number Theory) focus.

I publish all my work under free licenses (as long it is not limited by third parties). I believe in open knowledge and that the results of research and its access has to be possible and free, without any fees, for everybody.

I would be happy to get your support, to protect our right for private communication, open knowledge and online security.

- Academic degree: Bachelor of Science Physics

Websites:

- Main: <https://www.carolin-zoebelein.de>
- Research: <https://research.carolin-zoebelein.de>
- Apps: <https://www.pertpony.com>

## Practical experience

---

Current.....

### *Primary work*

- **Independent mathematical scientist** **Remote, Germany**  
*Freelancer, Primary: Researcher, Secondary: Adviser and contractor*  
Since 2016/11  
Focus: It-Security, Online privacy & anonymity  
Core areas: Cryptography, Algebra, Number Theory, Mathematical Modelling

### *For cross-subsidization*

- **Pert Pony - Apps for you** **Remote, Germany**  
*Freelancer, Development and selling of Android apps*  
Since 2018/06  
Coding language: Java
- **Ethical Hacking - Education - Consulting** **Remote, Germany**  
*Freelancer*  
Since 2017/07

### *Volunteering & activism*

- **Tor Project** **Remote, USA**  
*Volunteer*  
Since 2016/05
- **Artist** **Remote, Germany**  
*Freelancer*  
Since 2015/05  
Primary: The connection and integration of scientific phenomena into artwork,  
Secondary: Every kind of artwork about math, cryptography, privacy and digital security

## Former.....

- **Friedrich-Alexander-University Erlangen-Nürnberg, Department for Mathematics** **Germany**  
*Student assistant, IT-Support* 2016/04 - 2016/09
- **Siemens AG Forchheim** **Germany**  
*Student assistant, Computer Tomography development* 2015/03 - 2015/09  
Revision of data analysis programs for research. Coding language: Matlab
- **Friedrich-Alexander-University Erlangen-Nürnberg** **Germany**  
*Student assistant* 2012/10 - 2016/09  
Tutor for exercise lessons and practical courses in physics
- **High-Octane Motorsports e.V., University Erlangen-Nürnberg** **Germany**  
*Student member, Society in terms of the competition Formula Student* 2012/10 - 2013/03  
Tire simulation data analysis. Coding language: Matlab
- **University medical centre Erlangen, ENT-hospital, Phoniatriy and pedaudiology** **Germany**  
*Student assistant, Group: Fluid physical principles of the human vocalisation* 2011/01 - 2012/03  
Building and revision of numerical simulation and data analysis programs for research.  
Coding languages: C/C++, C#, Python
- **Independent** **Germany**  
*Volunteering* 2004/03 - 2016/03  
Unpaid private lessons for socially disadvantaged pupils

## Education

---

### Studies.....

- **Friedrich-Alexander-University Erlangen-Nürnberg** **Germany**  
*Bachelor of Science Computer Science, Paused* 2017/10 - 2019/03  
Major interests: Cryptography, IT-Security
- **Friedrich-Alexander-University Erlangen-Nürnberg** **Germany**  
*Master of Science Physics, Aborted* 2013/04 - 2016/09
- **Friedrich-Alexander-University Erlangen-Nürnberg** **Germany**  
*Bachelor of Science Physics, 2013/09* 2008/10 - 2013/09  
Bachelor thesis: *Dirac-Observablen in der Kosmologie* (Dirac observables in cosmology)  
Chair for Theoretical Physics III: Institute for Quantum Gravity, Supervisor: Prof. Dr. Kristina Giesel  
Major interests: Quantum gravity, Mathematical physics, Influence of number theory on physics

### School education.....

- **Peter-Vischer-School Nürnberg** **Germany**  
*Department Gymnasium, Mathematic, natural scientific focus* 2004/09 - 2008/06  
Abitur 2008/06 (University entrance qualification)
- **Peter-Vischer-School Nürnberg** **Germany**  
*Department Realschule, Mathematic, natural scientific, technical focus* 2000/09 - 2004/07  
School leaving certificate 2004/07
- **Ludwig-Uhland-School Nürnberg** **Germany**  
*Department Hauptschule* 1998/09 - 2000/07

### Training courses.....

- **Friedrich-Alexander-University Erlangen-Nürnberg** **Germany**  
*Training center for academic teaching (FBZHL)* 2017/11  
Didactics for tutors of the Faculty of Engineering - Basic course II
- **Friedrich-Alexander-University Erlangen-Nürnberg** **Germany**  
*Training center for academic teaching (FBZHL)* 2017/10  
Cross-cultural sensitization for tutors

## Exhibitions

---

- **'Concept' - International Exhibition on Conceptual Art** **Korea**  
Group exhibition 2016/05/06 - 2016/05/29  
CICA Museum, 196-30, Samdo-ro, Yangchon-eup, Gimpo-si, Gyeonggi-do, Korea 415-843  
Artworks: Photo with title 'I was here', Photo with title 'Signing'  
<https://cicamuseum.com/concept-2016-5-6-29>
- **#TwitterArtExhibit: NYC - 2016** **USA**  
Group exhibition 2016/03/31 - 2016/04/21  
Trygve Lie Gallery, 317 E 52nd St., New York, NY 10022  
Artwork: Postcard (Acrylic paint) with title 'All is public - No secrets'  
<http://twitterartexhibit.org>

## Organized Meetups & Workshops

---

- **Why you should study Number Theory!** **Germany**  
A friendly together for talking about Number Theory studies with coffee and tea. 2018/10  
Friedrich-Alexander-University Erlangen-Nürnberg, Department for Mathematics

## Teaching

---

### Non academic.....

- Remote teaching about online anonymity, privacy and encryption tools
- Private lessons for pupils of fifth year and above, from all kinds of Bavarian school types.  
Subjects: Math, Physics, Chemistry, Technology, Computer Science, French, Spanish

### Bachelor courses.....

- Mathematics for engineers 1 & 2
- Experimental physics for natural scientists 1 & 2
- Experimental physics for engineers 1 & 2
- Experimental physics 5: Nuclear and particle physics
- Theoretical physics 4: Statistical physics
- Practical basis courses 1 in physics for physicists part 1 & 2
- Practical courses in physics for engineers

### Master courses.....

- Advanced experimental physics: Particle and astroparticle physics
- Advanced theoretical physics: Advanced quantum mechanics

## Skills

---

### Math.....

**App. Number Theory:** Algebra, Cryptography, Number Theory

**Mathematical Modelling:** Analysis, Complex Analysis, Functional Analysis, Geometry, Graph Theory, Mathematical Physics, Numerical Analysis, Optimization and Control

### Hacking.....

**Areas of work:** Cryptography, Social engineering, QR codes, Online privacy & anonymity, Reverse engineering, Computer forensics

### Technical.....

**Coding:** C, C++, C#, Java, LabView, NASM, Perl, PHP, Python, Rust

**Mobile Dev.:** Android apps (Java)

**Debugging:** gdb, pdb, Valgrind

**Database:** MySQL, PostgreSQL, SQLite

**Math:** GNU PSPP, GNU Octave, Maple, Matlab, R, SageMath, Scilab

**Virtualization:** Docker, KVM, QEMU, VirtualBox

**Cloud Comp.:** AWS, Docker Cloud, Microsoft Azure

**Networking:** Ettercap, netcat, netstat, nmap, scapy, tcpdump, traceroute, Wireshark, ...

**WebServer:** Apache HTTP Server, nginx

**Monitoring:** Munin, Nagios, Zabbix

**SCM:** Puppet

**VC:** Git, SVN

**CAD - Basics:** Solid Edge, Pro/ENGINEER Wildfire

**Languages**.....

**First:** German

**Good:** English

**Basics:** Modern Standard Arabic, Standard Chinese, French, Spanish, Swahili

**A few words:** German Sign Language, Hausa, Modern Hebrew, Italian, Japanese, Kinyarwanda, Russian, Standard Tibetan

## Further information

---

You can find parts of my work also on...

- o (Math) Blog: <https://Samdney.github.io>
- o GitHub: <https://github.com/Samdney>
- o arXiv: <https://arxiv.org/search/?searchtype=author&query=Z%C3%B6belein%2C+C>

Preferred work: (Remote), Looking for employee and contractor jobs

Contact: Please use e-mail

Hiring Manual: <http://www.carolin-zoebelein.de/aboutme/portfolio/files/hiring-manual.pdf>

## Free time activities

---

- o Every kind of language (spoken, coding, math, ...)
- o Hanging around on irc

May 1, 2019