

Zöbelein Carolin

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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
- **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

Apps

Commercial.....

- **Cool Down**
◦ *Health & Fitness* v01: 2018/09/09
Includes advertising, Coding language: Java
App for your mental health which wants to help you to conquer bad emotional times.
<https://play.google.com/store/apps/details?id=com.pertpony.cooldown>
- **Catchy Balls**
◦ *Casual Game* v01: 2018/06/04
Includes In-App purchases, Coding language: Java
Catch all the balls which have the shown color and get points.
<https://play.google.com/store/apps/details?id=com.pertpony.catchyballs>

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>
https://cicamuseum.com/wp-content/uploads/2016/05/Concept_catalog.pdf
- **#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...

- (Math) Blog: <https://Samdney.github.io>
- GitHub: <https://github.com/Samdney>
- 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

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

May 8, 2019