

berberich

Curriculum Vitæ

Max-Planck-Institut für Informatik
Campus E1 4, 66123 Saarbrücken

☎ +49 (179) 796 4610

☎ +49 (681) 9325 1012

✉ eric@mpi-inf.mpg.de

🌐 www.mpi-inf.mpg.de/~eric

★ 01.03.1979 in Zweibrücken – German – unmarried

Fields of Interest

Programming, Library Design and Software Engineering.
Reliable and Efficient Geometric Computing & Robotics.
Digital Media, Communication Networks and Streaming.

Education

- 12.2008 **PhD,**
Saarland University, Saarbrücken, Germany, Summa Cum Laude.
Title of thesis: *“Robust and Efficient Software for Problems in 2.5-Dimensional Non-Linear Geometry (Algorithms and Implementations)”*
Thesis submitted in September 2008 and defended on 22.12.2008.
- 03.2004 – **PhD student,**
09.2008 *School of Computer Science, Saarland University, Saarbrücken, Germany.*
- 01.2004 **Diplom Computer Science,**
Saarland University, Saarbrücken, Germany, 1.0.
Title of thesis: *“Exact Arrangements of Quadric Intersection Curves”*
“Diplom” is a german university degree equivalent to about M.Sc.
- 10.1999 – **Undergraduate Student,**
01.2004 *School of Computer Science, Saarland University, Saarbrücken, Germany.*
Minor: Economics

Research Experience

- since 08.2009 **Postdoctoral Researcher,** *with Kurt Mehlhorn,*
Max-Planck-Institut für Informatik, Saarbrücken, Germany.
- 10.2008 – **PostDoc Scholar,** *with Dan Halperin,*
07.2009 School of Computer Science, Tel-Aviv University, Tel-Aviv, Israel.
- 03.2004 – **Ph.D. Student,** *with Kurt Mehlhorn,*
09.2008 Max-Planck-Institut für Informatik, Saarbrücken, Germany.
- 01.2003 – **Research Assistent,** *with Kurt Mehlhorn,*
11.2003 Max-Planck-Institut für Informatik, Saarbrücken, Germany.

Awards and Grants

- 10.2008 – 07.2009 **Postdoctoral scholarship of the budgeting and planning committee of the council for higher education in Israel (“Vatat”).**
Scholarship
- 05.2005 **Günter-Hotz-Medal.**
Award dedicated to an outstanding Diploma thesis submitted in 2004 at the School of Computer Science, Saarland University
- 02.2002 – 01.2004 **Studienstiftung des deutschen Volkes.**
Fellowship of the German National Academic Foundation
- 06.2001 – 09.2008 **e-fellows.net.**
Online Fellowship

Services

Administrative Bodies

- since July 2007 **Member of CGAL’s Editorial Board.**
- since March 2006 **Project management of EXACUS.**

Institutional Tasks

- since 2013 **MPII Department 1 Admin for repositories, Saarbrücken, Germany.**
- since 2010 **MPII Department 1 PostDoc Selection, Saarbrücken, Germany.**
- since 2009 **MPII Admin for LEDA, Saarbrücken, Germany.**
- since 2008 **Maintainer of MPII Slide and CV Templates, Saarbrücken, Germany.**

Member of Program Committees

- 2014 **Video and Multimedia Review of Computational Geometry, to accompany the Symposium on Computational Geometry, Kyoto, Japan.**
- 2010, 2011, 2012, 2013, 2014 **International Symposium of Visual Computing, Las Vegas, USA.**

Member of Organizing Committees

- 2013 **Geometric Computing Challenges, Rio de Janeiro, Brazil.**
- 2011 **MPII Department 1 Round of Introduction, Orscholz, Germany.**
- 2011 **ALGO 2011, Conference, Saarbrücken, Germany.**
- 2007 **27th CGAL Developer Meeting, Dagstuhl, Germany.**

Member of Projects

- 2013 – 2015 **Arrangements on Surfaces: Theory, Tools and Applications**, GIF No. 1150-82.6/2011, German-Israeli Foundation.
- 2009 – 2011 **Fixed Precision Approximation of Complex Shapes**, GIF No. 969-138.6/2007, German-Israeli Foundation.
- 2005 – 2008 **Algorithms of Complex Shapes**, ACS, EU: FET-Open in Framework Programme 6.
- 2001 – 2004 **Effective Computational Geometry for Curves and Surfaces**, ECG, EU: FP5-IST.

Community Service

- since 2011 **CoSeSy - Conference Session Synchronizer**, www.cosesy.org.
Provide webservice to synchronize sessions in multi-track conferences.

Refereeing Submissions

- Journals Computer Aided Geometric Design (CAGD), Computational Geometry – Theory and Applications (CGTA), IEEE Transactions on Automation Science and Engineering (T-ASE), International Journal of Robotics Research (IJR), Numerical Algorithms (NUMA)
- Conferences European Symposium on Algorithms (ESA), European Workshop on Computational Geometry (EuroCG), ACM Symposium on Computational Geometry (SCG), International Workshop of Symbolic-Numeric Computation (SNC)
- Research Grants Research Committee of the University of Crete (UoC), National Security Agency - Mathematical Science Program (NSA-AMS)

Teaching Experience

Supervision

- 2011 **Alexander Kobel**, *Certified Numerical Root Finding*, Master's thesis, Saarland University, Programming Advisor.
- 2009 **Sarah Schäffer**, *New Algorithms for Real Root Finding*, Internship, Max-Planck-Institut für Informatik, Supervisor.
- 2007 **Pavel Emeliyanenko**, *Visualization of Points and Segments of Real Algebraic Plane Curves*, Master's thesis, Saarland University, Co-Advisor.
- 2005 **Manuel Caroli**, *Exakte Arrangement-Berechnung gedrehter Quadratischer Kurven*, Bachelor's thesis, Saarland University, Co-Advisor.

Schools

- June 2013 **Geometric Computing**,
Lecturer, Summer School on Advanced Algorithms, IIITDM Jabalpur, India, in English.

Courses

- Winter 2013/2014 **Computational Geometry**,
Lecturer, Saarland University, in English.
- Summer 2012 **Algorithm Engineering**,
Lecturer, Saarland University, in English.
- Winter 2009/2010 **Computational Geometry and Geometric Computing**,
Lecturer, Saarland University, in English.
- Summer 2009 **Programming Challenges**,
Lecturer in Block Course, Saarland University, in German.
- March 2009 **A Gentle Introduction to CGAL**,
*Guest Lecturer in *Applied Aspects of Computational Geometry**, Tel-Aviv University, in English.
- December 2008 **Extending and Manipulating CGAL's Arrangements**,
Tutorial, Tel-Aviv University, in English.
- Summer 2002 **Informatik 5 (Algorithmen and Datastrukturen)** ,
Head Teaching Assistant, Saarland University, in German.
- Summer 2001 **Informatik 4 (Logik, Semantik Verifikation)**,
Teaching Assistant, Saarland University, in German.

Seminars

- Summer 2010 **Computational Geometry and Geometric Computing**,
Instructor, Saarland University, in German.
- Summer 2005 **Theory and Applications of Geometric Algorithms**,
Teaching Assistant, Saarland University, in German.

Software Engineering

Geometrical Software

- since 2006 **Developer in CGAL**,
Computational Geometry Algorithms Library, see www.cgal.org.
Main contributions:
Algebraic_kernel_d and Curved_kernel_via_analysis_2.
Contributions to:
Arrangement_on_surface_2, Minkowski_sum_with_circle_2,
Spatial_subdivision, Git and Cmake
- since 2002 **Developer in EXACUS**,
Libraries for Efficient and Exact Algorithms for Curves and Surfaces,
see www.mpi-inf.mpg.de/EXACUS.
Main contributions to:
CONIX, QUADRIX, and SWEEPX

Other software

- February 2005 – November 2005 **Least-Cost-Routing for Asterisk-Software-PBX (VoIP).**
- o Designed and implemented least cost router (LCR) for Open-Source PBX Asterisk with automatic updates from www.telefonsparbuch.de.
 - o The tool was presented in *c't* (12/2005, 13/2005) and *iX* (04/2006) (German Computer Magazines).
- January 2002 – March 2002 **Icecast-Plugin for Network-Integrated Multimedia Middleware.**
- o Developed as student project a plugin for *Network-Integrated Multimedia Middleware (NMM)* to stream audio to an icecast-server. NMM started as an R&D project at Saarland University to integrate different digital media into the network layer.

Digital Media

- 05.1997 — 12.2007 and since 08.2011 **Radio Studio and Show, RauteMusik.FM, Aachen, Germany.**
- o Started new weekly show in 2011: www.hometunes.de
 - o Designed/constructed/maintained a private digital radio studio see pictures at www.hometunes.de
 - o Producing, hosting, and broadcasting a magazine for young people, including basic journalism.
 - o Technical supervision of broadcasting equipment and servers.
 - o Parallel online coverage of show (using an own CMS written in php), see www.wir-machen-radio.net (also for pictures of previous analog studio)
- 04.2003 — 06.2003 **RPR1, Internship at statewide radiostation in southwest Germany, Trier, Germany.**
- o Member of the editorial office to participate in the daily work which included writing reports, organizing interviews, producing spots, and presenting news on air.
 - o Own knowledge of broadcasting technology served to solve smaller technical problems.

Computer skills

	Expert level:	Good level:
Programming	C++, Javascript, php, CMake, Git, Subversion	C, MEAN, Java, Basic, Delphi, Python, SQL
Media	L ^A T _E X, Audio Editing, mAirlist	Video Editing, Maple, Office
OS	Linux, Mac OS	Windows

Languages

German	native language
English	fluent
Finnish	basic knowledge
French	basic knowledge

Talks at Conferences, Workshops, Seminars

- August 2014 **4th International Congress on Mathematical Software**, *Hanyang University*, Seoul, South Korea.
- April 2014 **Renaissance Combinatorics Seminar**, *Aalto University*, Espoo, Finland.
- March 2013 **Seminar: “Computational Geometry”**, *Leibniz Center for Computer Science*, Dagstuhl, Germany.
- September 2011 **HIIT Seminar Kumpula**, *University of Helsinki*, Helsinki, Finland.
- June 2011 **27th Annual Symposium on Computational Geometry (SCG)**, Paris, France.
- June 2011 **4th International Workshop on Symbolic-Numeric Computation (SNC)**, San Jose, USA.
- May 2011 **Noon Seminar of Department 1**, *Max-Planck-Institut für Informatik*, Saarbrücken, Germany.
- March 2011 **Computational Geometry Seminar**, *Tel-Aviv University*, Tel-Aviv, Israel.
- January 2011 **13th Workshop on Algorithm Engineering and Experiments (ALENEX)**, San Francisco, USA.
- July 2010 **Computational Geometry Seminar**, *Tel-Aviv University*, Tel-Aviv, Israel.
- March 2010 **26th European Workshop on Computational Geometry (EuroCG)**, Dortmund, Germany.
- February 2010 **Noon Seminar of Department 1**, *Max-Planck-Institut für Informatik*, Saarbrücken, Germany.
- July 2009 **Research Seminar in Discrete and Computational Geometry**, *Ben-Gurion University of the Negev*, Beer-Sheva, Israel.
- December 2008 **Ph.D. defense**, *Saarland University*, Saarbrücken, Germany.
- November 2008 **Computational Geometry Seminar**, *Tel-Aviv University*, Tel-Aviv, Israel.
- June 2008 **12th ACM Symposium on Solid and Physical Modelling (SPM)**, *Stony Brook*, NY, USA.
- March 2008 **24th European Workshop on Computational Geometry (EuroCG)**, Nancy, France.
- October 2007 **15th European Symposium on Algorithms (ESA)**, Eilat, Israel.
- September 2007 **Acs Workshop on Robust Shape Operations**, Sophia-Antipolis, France.

- Septmenber 2007 **Noon Seminar of Department 1**,
Max-Planck-Institut für Informatik, Saarbrücken, Germany.
- March 2007 **23rd European Workshop on Computational Geometry (EuroCG)**,
Graz, Austria.
- September 2006 **GI-Seminar on Algorithm Engineering**,
Dagstuhl, Germany.
- June 2006 **Computational Geometry Seminar**,
Tel-Aviv University, Tel-Aviv, Israel.
- April 2006 **Noon Seminar of Department 1**,
Max-Planck-Institut für Informatik, Saarbrücken, Germany.
- June 2005 **ARC Arcadia, 1st Workshop**,
Nancy, France.
- June 2005 **21st Annual Symposium on Computational Geometry (SCG)**,
Pisa, Italy.
- March 2004 **ECG Final Workshop**,
Paris, France.
- September 2002 **10th European Symposium on Algorithms (ESA)**,
Rome, Italy.
- May 2002 **ECG General Workshop**,
Zurich, Switzerland.

Visits

- 14.05. – **Tel-Aviv University**, Tel-Aviv, Israel.
01.06.2014 People: Efi Fogel, Dan Halperin
Topic(s): Arrangements, Poly-Curves
- 07.04. – **Aalto University**, Espoo, Finland.
17.04.2014 People: Alexander Engström, Kaie Kubjas, Wouter van Heijst
Topic(s): Link Robots, Squares on Algebraic Curves, nonnegative rank matrices
- 29.08. – **Tel-Aviv University**, Tel-Aviv, Israel.
13.09.2013 People: Efi Fogel, Dan Halperin, Michael Hemmer
Topic(s): Arrangements, Robot Motion Planning
- 09.07. – **Tel-Aviv University**, Tel-Aviv, Israel.
23.07.2013 People: Efi Fogel, Dan Halperin
Topic(s): Arrangements, Robot Motion Planning
- 08.10. – **Tel-Aviv University**, Tel-Aviv, Israel.
28.10.2012 People: Efi Fogel, Dan Halperin, Michael Hemmer
Topic(s): Arrangements, Scaffolds, GIF
- 15.05. – **Tel-Aviv University**, Tel-Aviv, Israel.
30.05.2012 People: Efi Fogel, Dan Halperin, Michael Hemmer
Topic(s): DCEL, Tiled arrangements
- 18.10. – **Tel-Aviv University**, Tel-Aviv, Israel.
28.10.2011 People: Efi Fogel, Dan Halperin, Michael Hemmer, Roza Pogalnikova
Topic(s): Arrangements on surfaces, DCEL, Minkowski deconstruction

- 05.09. – **University of Helsinki**, Helsinki, Finland.
 09.09.2011 People: Valentin Polichuk, Jan Achrenius
 Topic(s): Geometric Rounding and Approximations
- 17.03. – **Tel-Aviv University**, Tel-Aviv, Israel.
 10.04.2011 People: Efi Fogel, Dan Halperin, Roza Pogalnikova
 Topic(s): Arrangements on surfaces, Minkowski deconstruction, Git
- 13.12. – **IST Austria**, Vienna, Austria.
 17.12.2010 People: Michael Kerber
 Topic(s): Consistent Digital Geometry, Minkowski deconstruction
- 18.07. – **Tel-Aviv University**, Tel-Aviv, Israel.
 10.08.2010 People: Efi Fogel, Dan Halperin, Michael Kerber (IST Austria), Roza Pogalnikova
 Topic(s): Arrangements on surfaces, Minkowski deconstruction
- 08.06.2008 **New York University, Courant Institute**, New York, USA.
 People: Prashant Batra, Ben Galehouse, Chee Yap
 Topic(s): Subdivision vs. exact computing, local algebraic bounds
- 13.10. – **Tel-Aviv University**, Tel-Aviv, Israel.
 24.10.2007 People: Efi Fogel, Dan Halperin, Ophir Setter, Ron Wein
 Topic(s): Arrangements on surfaces, Voronoi diagrams
- 23.03.2007 **TU Graz**, Graz, Austria.
 People: Efi Fogel (Tel-Aviv University)
 Topic(s): Arrangements on spheres, Benchmarks
- 14.09. – **ETH Zurich**, Zurich, Switzerland.
 16.09.2006 People: Ron Wein (Tel-Aviv University)
 Topic(s): *Arrangements on quadrics*
- 04.06. – **Tel-Aviv University**, Tel-Aviv, Israel.
 12.06.2006 People: Efi Fogel, Dan Halperin, Ron Wein
 Topic(s): Two-dimensional arrangements (on surfaces) in CGAL, Benchmarks, Curved kernel
- 19.10. – **INRIA**, Sophia-Antipolis, France.
 27.10.2005 People: Michael Hemmer, Menelaos Karavelas, Sylvain Pion, Monique Teillaud, Elias Tsigaridas
 Topic(s): Design of CGAL's algebraic and curved kernel

Workshops

- 15.09. – **37th CGAL Developer Meeting**,
 19.09.2013 *Inria*, Paris, France.
- 02.12. – **36th CGAL Developer Meeting**,
 06.12.2013 *Inria*, Paris, France.
- 27.05. – **35th CGAL Developer Meeting**,
 31.05.2013 *Loria*, Nancy, France.
- 03.03. – **Computational Geometry**,
 08.03.2013 *Leibniz Center for Computer Science*, Dagstuhl, Germany.
- 17.12. – **34th CGAL Developer Meeting**,
 21.12.2012 *Inria*, Sophia-Antipolis, France.

- 20.05. – **33th CGAL Developer Meeting**,
24.05.2012 *Tel-Aviv University*, Tel-Aviv, Israel.
- 19.09. – **32th CGAL Developer Meeting**,
23.09.2011 *Inria*, Sophia-Antipolis, France.
- 11.04. – **31th CGAL Developer Meeting**,
15.04.2011 *F.O.R.TH.*, Heraklion, Greece.
- 31.05. – **30th CGAL Developer Meeting**,
04.06.2010 *Inria*, Sophia-Antipolis, France.
- 31.08. – **29th CGAL Developer Meeting**,
04.09.2009 *ETH Zurich*, Zurich, Switzerland.
- 11.01. – **28th CGAL Developer Meeting**,
15.01.2009 *Dagstuhl*, Germany.
- 16.12. – **27th CGAL Developer Meeting**,
20.12.2007 *Dagstuhl*, Germany.
- 26.09. – **Acs Workshop on Robust Shape Operations**,
28.09.2007 *Inria*, Sophia-Antipolis, France.
- 21.08. – **7th ADFOCS**, *the Max-Planck Advanced Course on the Foundations of Computer Science*,
25.08.2006 *Max-Planck-Institut für Informatik*, Saarbrücken, Germany.
- 08.05. – **Acs General Workshop**,
11.05.2007 *FU Berlin*, Berlin, Germany.
- 05.02. – **26th CGAL Developer Meeting**,
09.02.2007 *Inria*, Sophia-Antipolis, France.
- 03.09. – **GI-Seminar on Algorithm Engineering**,
08.09.2006 *Dagstuhl*, Germany.
- 09.07. – **25th CGAL Developer Meeting**,
14.07.2006 *Dagstuhl*, Germany.
- 08.05. – **Acs General Workshop**,
11.05.2006 *University of Athens*, Athens, Greece.
- 20.09. – **Acs Research Workshop**,
22.09.2005 *ETH Zurich*, Zurich, Switzerland.
- 29.08. – **6th ADFOCS**,
02.09.2005 *Max-Planck-Institut für Informatik*, Saarbrücken, Germany.
- 27.06. – **ARC Arcadia, 1st Workshop**,
01.07.2005 *Loria-Saint Fiacre*, Nancy, France.
- 10.06.2005 **Acs Mini Workshop**,
Pisa, Italy.
- 02.03. – **23th CGAL Developer Meeting**,
04.03.2005 *Inria*, Sophia-Antipolis, France.
- 06.09. – **5th ADFOCS**,
10.09.2004 *Max-Planck-Institut für Informatik*, Saarbrücken, Germany.
- 31.03. – **Ecc Final Workshop**,
02.04.2004 *Paris*, France.

- 08.09. – **4th ADFOCS**,
12.09.2003 *Max-Planck-Institut für Informatik*, Saarbrücken, Germany.
- 22.05. – **Ecg General Workshop**,
24.05.2002 *ETH Zurich*, Zurich, Switzerland.

Entrepreneurship

since 1999 **Eric Berberich Multimedia**, *private company*, Projects involving information- and communication-systems for private and business (lawyers, physicians, et cetera) customers, such as SOHO networks (LAN + WLAN), Network Attached Storage, webdesign/-coding (php, Joomla, SQL, HTML/CSS), or (VoIP) communication routing (hardware and software).

Background Information

- CGAL The **C**omputational **G**eometry **A**lgorithms **L**ibrary, is a C++ library (about 1.000.000 lines of code) that aims for efficient, generic, modular, and also robust and reliable implementations of geometric algorithms. It was founded by scientific sites in Europe and Israel in 1996. CGAL is also available for industrial applications.
Link: www.cgal.org
- EXACUS This software project collects prototypical C++ libraries (about 150.000 lines of code containing **E**fficient and **E**xact **A**lgorithms for **C**urves and **S**urfaces. It was founded 2002 at the Max-Planck-Institute for Computer Science with the mission to make the non-linear *world* efficient and reliable as CGAL has done for the linear geometry during the past decade. The prototypical focus allowed to develop fresh ideas. Most of them matured over the years and have in the past few years mostly been integrated into the well-established CGAL.
Link: www.mpi-inf.mpg.de/EXACUS
- Eric Berberich
Multimedia The company was founded in 1999 to offer my knowledge in computer- and communications-systems to customers. All projects have been finalized to the contentment of the customers and word-of-mouth advertisement was always a great source for new projects.
- Publications A full list of all my scientific publications is available upon request.
- Grades A list of grades and copies of all certificates are available upon request.