



Gemfony scientific

# Company Presentation

Version Feb. 2, 2015

# Who we are

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- Gemfony scientific
  - A spin-off from Karlsruhe Institute of Technology
- With particular experience in the fields of
  - **Optimization of Complex Systems**
  - **Technical and Science Consulting**
  - **Implementation of IT solutions**
  - **Technical Marketing, PR and Training**
- Long standing background in parametric optimization
  - Gemfony maintains the **Geneva library collection** of distributed optimization algorithms



Dr. Rüdiger Berlich



Dr. Sven Gabriel

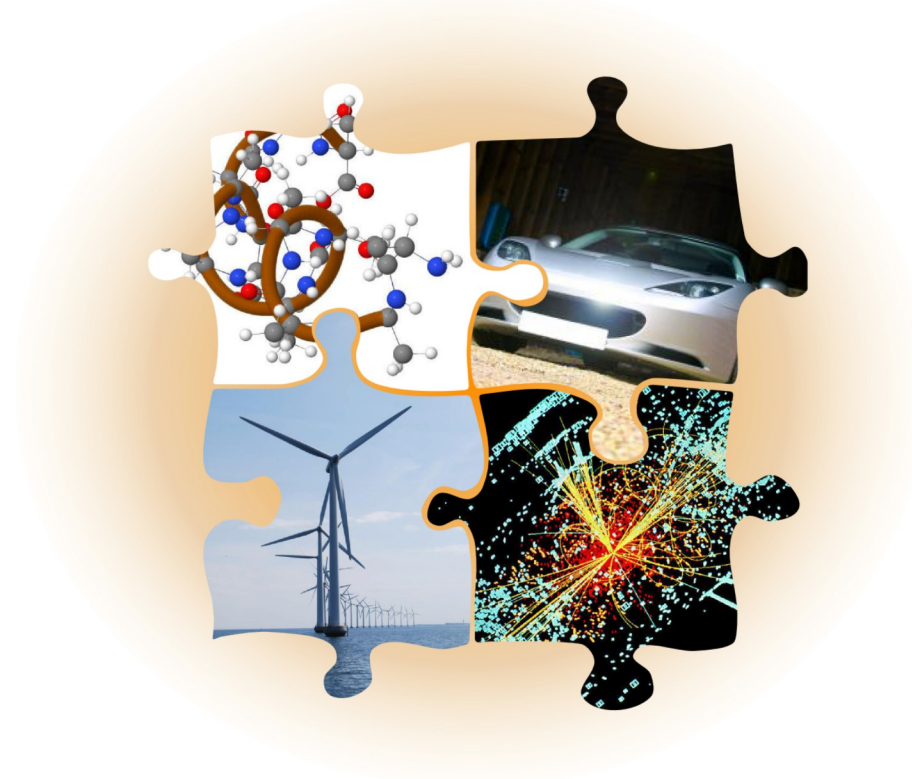


Dr. Ariel Garcia

# What we want

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- With these slides, we would like
  - To get in touch with you
  - To explain our offerings
  - To find common grounds
  - To discuss joint business opportunities
  
- Feel free to contact us any time:
  - Email: [r.berlich@gemfony.eu](mailto:r.berlich@gemfony.eu)
  - Phone: +49 7247 934 2782
  - Web: <http://www.gemfony.eu>



# What we offer: **Optimization of Complex Systems**

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- **Problem analysis**, in close cooperation with in-house experts
  - Identification or design of suitable models and simulation tools
  - Interfacing with an optimizer of your choice\*
  - Customization of solvers and tools
- **Design of an integrated solution**
  - Design of a user-friendly „click-to-optimize“ interface
  - Integration with your IT resources
- **„Meta-Optimization“**
  - Tailoring of the optimization algorithms to your problem domain to maximize results
- **Maintenance and support**
- **Current Use-Case:**
  - Optimization of the acoustics of exhaust pipes in the automotive industry

## What we offer: **Technical and Science Consulting**

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- **Tackling of complex problems** in product design
  - Identification of **existing solutions**
  - Identification of applicable **scientific research**
  - Identification, evaluation and design of **new techniques**
- **Feasibility studies** for new IT applications in science and engineering
- **Proof-of-concept** studies
- **Open Source infrastructures**
  - Auditing and identification of unmet potentials
- **Cloud- and Grid-Infrastructures**
  - Auditing and identification of unmet potentials

# What we offer: **Implementation of IT solutions**

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- Custom **software development** and **maintenance**
  - Focus on Linux-, BSD- and UNIX-Environments, including clusters, Grid and Cloud
  - Focus on C++ and Python, Unix tools and shell scripting
- **Software deployment** and **management** of the resources
  - In-House Cloud-deployment and Cloud management
  - parametric optimization
  - distributed computing, and Cloud environments, including **security**
- **Integration** of existing software components
- **Search for bottle-necks** and **bug-squatting** in hard- and software-environments
- **Monitoring** of IT resources, also in distributed environments

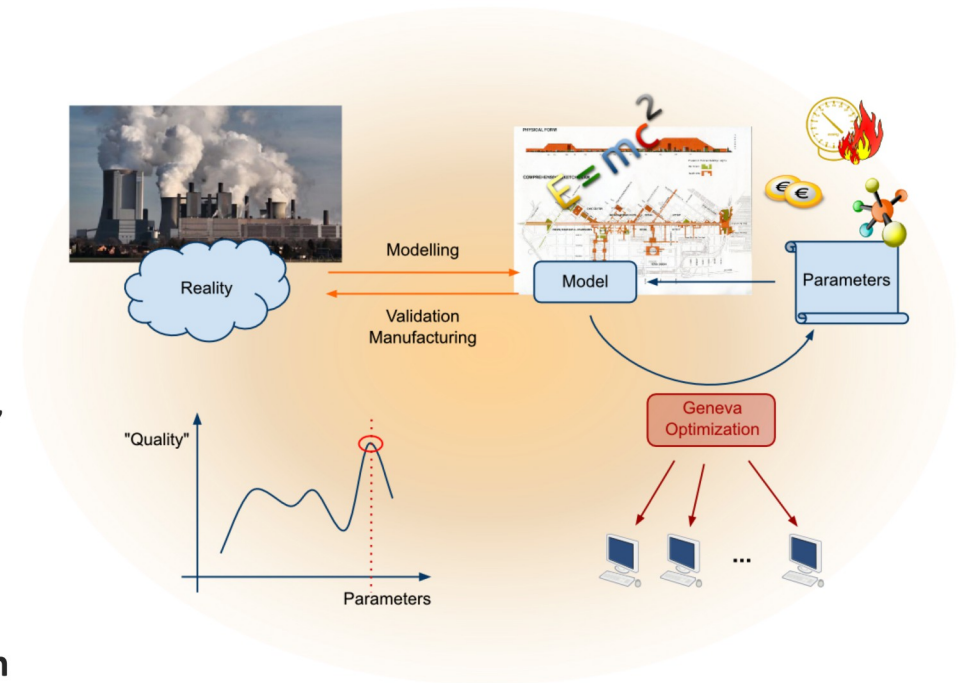
## What we offer: **Technical Marketing, PR and Training**

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- Proven track-record with
  - many years of experience with public relations and marketing efforts particularly in the fields of HPC, Grid- & Cloud-Computing
  - evangelism-role for Grid- and Cloud-Computing, Modelling + Simulations, Open Source
- Presentations
- Courses + Trainings

# What we offer: The Geneva Library Collection

- **Geneva == Grid enabled evolutionary algorithms**
- Generic Open Source solution for the search for **optimized solutions** of technical and scientific problems
  - Available from <http://www.launchpad.net/geneva>
- **Parametric Optimization**
  - Covering Evolutionary Algorithms, Swarm Algorithms, Simulated Annealing, Parameter Scans and Gradient Descents
- Data structures allow direct interaction between different optimization algorithms with **just one problem description**
- Efficient parallelization
  - **Execution in clusters**, Grids and Clouds
  - Support for **many-core systems**
  - Back-end support for **GPUs** possible
- Written in portable C++





## Customer Reference (in German)

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*"Wir haben **Gemfony scientific** als Entwicklungspartner im Kontext eines Projekts zur Optimierung der Bauteilparameter von Abgasanlagen engagiert und können auf mehr als ein Jahr kontinuierliche Zusammenarbeit zurückblicken. Dabei konnten die Gemfony-Mitarbeiter als technisch wie wissenschaftlich fundierte Querdenker durch souveräne Performance in komplexem Themenumfeld überzeugen. Der starke Fokus auf die Rückmeldung durch die eingebundenen User führte zu einer sehr effizienten, offenen und dynamischen Projektkultur - unsere Erwartungen im Bezug auf Rückmeldezeit, Beratung und Service wurden dabei jeweils übertroffen."*

Dominik Rödel (Gruppenleiter Akustik- und Ladungswechselberechnung)

# Credits

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Slide	Figure	Source
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„What we want“	Wind turbines in puzzle	<a href="http://www.flickr.com/photos/pebondestad/3533177131/sizes/l/in/photostream/">http://www.flickr.com/photos/pebondestad/3533177131/sizes/l/in/photostream/</a> Creative Commons Attribution 2.0; By Pål Espen Bondestad
„What we want“	Particle decay	<a href="https://en.wikipedia.org/wiki/File:CMS_Higgs-event.jpg">https://en.wikipedia.org/wiki/File:CMS_Higgs-event.jpg</a> Creative Commons Attribution Share-Alike 3.0; By CERN
„What we offer:The Geneva library collection“	Powerplant Niederaussem	<a href="http://energytransition.de/2013/08/german-electricity-getting-cheaper-on-exchange/">http://energytransition.de/2013/08/german-electricity-getting-cheaper-on-exchange/</a> Creative Commons Attribution 3.0 Unported; By Stodtmeister
„What we offer:The Geneva library collection“	City map	<a href="http://www.flickr.com/photos/walkingsf/4468474849/">http://www.flickr.com/photos/walkingsf/4468474849/</a> Creative Commons Attribution 2.0 Generic; By Eric Fischer
„What we offer:The Geneva library collection“	Clip art	<a href="http://www.clker.com/disclaimer.html">http://www.clker.com/disclaimer.html</a>
Other slides	Other pictures	Gemfony scientific

## Contact / Masthead

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