CURRICULUM VITAE

Name:	**Georg Ostermaier**
Date of birth:	**10.05.1970**
Nationality:	**German**
Present Position:	**Consultant, Developer, Head of Decision Trees GmbH, Permanent Consultant of Trianel GmbH in Aachen, Germany**
Mail:	**georg.ostermaier@dtrees.com**
Phone:	**+49 89 20 60 21 150 (main office Munich) +41 71 2444 631 (office Switzerland) mobile: +49 172 9039456**
Address:	**Scheitlinstraße 8, 9000 St. Gallen, Switzerland**

EDUCATION:

1998 – 2001	**University of St. Gallen, Switzerland** Institute for Operations Research and Computational Finance Doctoral degree (“Dr. oec.”, equivalent to PhD) PhD-Thesis: “Electric Power System Scheduling by Multistage Stochastic Programming – An Optimization Approach to Profitability in Volatile Electricity Markets”

1989 – 1995 **Technical University of Munich, Germany**
Major: Electrical Engineering, Power Engineering
Degree: "Dipl.-Ing." (equivalent to Masters Degree)
Master thesis: "Statistical analysis of performance data and optimization of a test cycle for electric vehicles based on probabilistic methods"

1980 –1989 **König-Karlmann-Gymnasium Altötting, Germany**
Main focus: mathematics and physics

LANGUAGES:

German	mother tongue (Bavarian)
English	excellent
Spanish	fluent
Russian	basic knowledge

INDUSTRY AFFILIATIONS

Since 2006 **Decision Trees GmbH, www.dtrees.com**
Managing Director, Consultant, Developer

- Consulting and Software Development
- Development of mathematical/stochastic optimization models and relevant software for
    - Valuation of power plants under consideration of future price and outage uncertainty
    - Optimal unit commitment of power plants under consideration of all future uncertainties (power and fuel prices, CO2 prices, reservoir inflows, wind generation etc.)
    - Valuation and optimal operation of gas contracts, gas storages and portfolios of gas procurement and gas trading
    - Sensitivity analyses of real option values of power plants and storages with respect to uncertain future price evolutions
    - Optimized price dependent bid and offer prices to spot markets
    - Stochastic forward portfolio optimization under consideration of uncertain future spot and forward market prices
    - Optimization of hedging strategies
    - Risk limitation modelling
    - Monte-Carlo and analytic Cross-Commodity Value-at-Risk analysis
    - Integrated stochastic optimization of power plant dispatch, spot and forward trading
    - Investment analysis based on stochastic optimization models
    - Valuation of business strategies and trading strategies under consideration of future price and volume uncertainties
    - Model based generation of arbitrage free price forward curves
    - Development of stochastic price and volume processes including

parameter estimation
  - Schedule decomposition (hedging) models including off-standard products

- Selection of software and consulting projects with Decision Trees GmbH:
  http://www.dtrees.com/References.main3.0.html?&L=4

  - Trianel European Energy Trading GmbH, Aachen
    - Stochastic Optimization for the valuation and optimization of power plants
    - Stochastic Optimization and deterministic optimization of procurement and generation portfolios
    - Stochastic Optimization and deterministic optimization for the valuation and optimization of gas storage and gas procurement portfolios
    - Stochastic and deterministic optimization of coal plants
    - Stochastic Optimization for the valuation and optimization of hydro power systems

  - ExxonMobil, London
    - Valuation of long term natural gas contracts based on Stochastic Programming
    - Valuation of natural gas storages based on Stochastic Programming

  - BS Eergy, Braunschweig
    - Valuation of natural gas storages based on Stochastic Programming

  - Mark-E AG, Hagen
    - Stochastic Optimization for the valuation and optimization of power plants

  - Salzburg AG, Salzburg
    - Stochastic and deterministic optimization of the entire hydro power plant system of Salzburg AG
    - Portfolio optimization of the entire thermal power plant system and district heating system of Salzburg AG
    - Mathematical optimization model for the generation of hourly price forward curves
    - Stochastic Optimization for the valuation and optimization of the hydro power plants of Salzburg AG

  - Rheinenergie AG, Köln
    - Stochastic Optimization for the valuation and optimization of power plants
    - Stochastic Optimization for the valuation and optimization of gas storages

  - Dong Energy, Denmark
    - Stochastic Optimization for the valuation and optimization of power plants

  - Energieversorgung Niederösterreich

- Stochastic Optimization for the valuation and day-ahead optimization of coal power plants

- Statkraft Markets, Düsseldorf
  - Stochastic Optimization for the valuation and optimization of power plants

- Südweststrom AG, Tübingen
  - Stochastic Optimization for the valuation and optimization of gas procurement portfolios

- Selection of software and consulting projects with the institute for operations research and computational finance:

  - Comision Ejecutiva Hidroelectrica del Rio Lempa (El Salvador)
    - Stochastic Optimization for the optimization of hydro power systems http://www.elsalvador.com/noticias/2001/7/22/NEGOCIOS/negoc1.html

2004 - 2006 **Sakonnet Technology Ltd, London, www.sknt.com**
Quantitative Analyst, Business Analyst, lead analyst for E.ON Sales & Trading, Product Management for Xenon Trading and R*i*sk Management System, Introduction of Stochastic Optimization and advanced VaR Methodology to Sakonnet's product suite.
First hand experience of developing trading applications in Fixed Income, IR Derivatives, FX, Energy Forwards, Futures, Swaps and Options, Energy OTC and Exchange Markets, pricing, risk, P&L and back office. In depth practical business and systems experience in electricity generation, electricity, gas , oil and emissions trading, power plant scheduling, energy markets (electricity, gas, oil, emissions) , derivatives (futures, options, swaps, etc.) covering front , middle and back office. Extensive hands-on technology experience as system designer and developer, OO design, development, multi-technology, enterprise-level software; C++, C#, Unix, Windows, .NET, Oracle, SQL Server, VBA, XML, Mathematica, FEA analytics.
Extensive on site consulting at major businesses in the European energy industry, sales and pre-sales activities.

2001 - 2004 **Institute for Operations Research and Computational Finance, University of St.Gallen , Switzerland, www.iorcf.unisg.ch**
Head of Department "Optimization of Power Systems"
Project management and consulting of power providers in El Salvador, Brazil, France, Austria, Switzerland, Germany, the Netherlands
Basic and applied research in mathematical and stochastic optimization, risk management in the electric power industry, software technical implementation of relevant analysis and optimization tools, marketing and distribution of applied mathematical methodologies
(cf. www.verbundplan.at, www.cel.gob.sv, www.elsalvador.com/noticias/2001/7/22/NEGOCIOS/negoc1.html)

1998-2001	**Institute for Operations Research and Computational Finance, University of St.Gallen, Switzerland, www.iorcf.unisg.ch** Research Assistant for Operations Research, Modelling and optimization of power generation systems and markets, stochastic optimization methodologies, risk management, Software and database development for power providers MS Visual C++, CPLEX 9.0 (Optimization Solver Software), Visual Basic, Visual Basic for Applications (Development of User Interfaces), Oracle 8.1.7 (Database Construction and Administration), MS Access (cf. www.iorcf.unisg.ch)
1996 – 1998	**FrankenData GmbH, Erlangen, Germany** Power system analysis, software and database development for power providers, SQL-databases (Oracle 7.x), MS-Visual C++, Visual Basic, Visual Basic for Applications (cf. www.frankendata.de)
1997	**Systech Software GmbH, Kastl, Germany** Risk management, software and database development for a credit risk management system, SQL-databases (MS Access, MS SQL-Server), Visual Basic, Visual Basic for Applications (cf. www.systech-software.de)
1995 – 1996	**Federal Armed Forces, Traunstein, Germany** Software development, Visual Basic, Visual Basic for Applications
1994 – 1995	**Research Institute for Energy Economy of the Society for Applied Energy Sciences, Munich, Germany**, Graduate student, Software Development (Visual Basic, C, C++), Testing and Evaluation of Electric Vehicles
1994	**Isar-Amperwerke AG, München, Germany** Trainee in: - evaluation of combined heat and power plants
1992	**Österreichisch-Bayerische Kraftwerke AG, Simbach, Germany** Trainee in: - assistance in reservoir operations management - creation and correction of electrical plans - testing of generators - calculation of short circuit currents

PUBLICATIONS

2011	Jürgen Borowka, Sebastian Pack, Georg Ostermaier: *Beschaffungsoptimierung und Portfoliomanagement*, Euroforum-Lehrgang, April 2011
2009	Georg Ostermaier, Frederik Gaiser: *Trianel erwirtschaftet höhere Deckungsbeiträge durch erfolgreiche Anwendung der Stochastischen Kraftwerkseinsatzoptimierung*, emw-Magazin, Februar 2009
2008	Georg Ostermaier, Tim Überhorst: *Effizienzsteigerung im Day-Ahead-Einsatz von Erzeugungsanlagen durch stochastische Optimierung,* emw-Magazin, April 2008
2006	Georg Ostermaier: *Automated Trading? Integrated Decision Support for Power Plant Operation and Trading Desks,* Proceedings, Energy Talks Ossiach, 2006
2003	Georg Ostermaier, Karl Frauendorfer, Gido Haarbrücker: *Sistema de Gerenciamento para a Geração e a Comercialização de Energia Elétrica sob Instabilidate,* In: 3°Simpósio Internacional da VDI sobre Energia - Cenário atual, Desafios e novas Tecnologias Published by Associação Técnica Brasil-Alemanha
2002	K. Frauendorfer, J. Güssow, G. Haarbrücker, D. Kuhn, G. Ostermaier: *Umsetzung stochastischer Optimierungsmethoden in der Energiewirtschaft.* In: VDI-Berichte Nr 1688: IT-Lösungen für die Energiewirtschaft in liberalisierten Märkten, Tagung Schliersee 15./16. Mai 2002 / Hrsg.: VDI-Gesellschaft Energietechnik. - Düsseldorf: VDI Verl., 2002
2001	Georg Ostermaier, Karl Frauendorfer (2001): *Bewältigung von Planungsunsicherheiten in der Energiewirtschaft.* In: VDI- Berichte1627 on „Optimierung in der Energiewirtschaft"; October09-10, 2001, Veitshöchheim
2001	Karl Frauendorfer, Georg Ostermaier(2001): *Mehrstufige Stochastische Programmierung in der Energiewirtschaf – ein flexibler Optimierungsansatz unter verschiedenen unsicheren Einflussfaktoren.* In: VDI- Berichte1594 on „Fortschrittliche Energiewandlung und -anwendung"; March 13-14, 2001, Ruhr-Universität Bochum
2001	Georg Ostermaier: *Electric Power System Scheduling by Multistage Stochastic Programming – an Optimization Approach to Profitability in Volatile Electricity Markets.* PhD thesis, Institute for Operations Research, University of St. Gallen, 2001
2000	Karl Frauendorfer, Jens Güssow, Georg Ostermaier: *Stochastic Optimization in Dispatching of Complex Power Systems.* In: Energie-

symposium Ossiach 1999, Forschung im Verbund, Schriftenreihe Band 61, Wien, 2000

SELECTED WORKSHOPS AND CONFERENCES:

2003	Georg Ostermaier: *Sistema de Gerenciamento para a Geração e a Comercialização de Energia Elétrica sob Instabilidate*, 3°Simpósio Internacional da VDI sobre Energia - Cenário atual, Desafios e novas Tecnologias, Associação Técnica Brasil-Alemanha, Sao Paulo, Brazil Novembro 26./27., 2003
2003	Georg Ostermaier: *Bit@Energy - A Stochastic Optimization Method and Tool for Power Generation and Trading in Liberalized Energy Markets,* SIMPASE (Simpósio e Automação de Sistemas Elétricos), Recife, Brazil, May 11th to . 14th 2003
2002	Georg Ostermaier, Karl Frauendorfer, Gido Haarbrücker: *Stochastic Optimization of Long Term Contracts in a Central American Electricity Market,* Conference on Operations Research September, 2-5 2002: OR2002, Klagenfurt, Austria
2002	Georg Ostermaier: *Umsetzung stochastischer Optimierungsmethoden für die Energiewirtschaft,* VDI-Conference on „IT-Lösungen für die Energiewirtschaft“; May 17, 2002, Schliersee, Germany
2001	Georg Ostermaier: *Bewältigung von Planungsunsicherheiten in der Energiewirtschaft,* VDI-Conference on „Optimierung in der Energiewirtschaft“; October 9-10, 2001, Veitshöchheim, Germany
2001	Georg Ostermaier, Karl Frauendorfer: *Stochastic Modeling of an Electric Power Supply System in Central America,* 9th international conference on stochastic programming, August, 25-29, Humboldt University, Berlin
2001	Georg Ostermaier: *Mehrstufige Stochastische Programmierung in der Energiewirtschaf – ein flexibler Optimierungsansatz unter verschiedenen unsicheren Einflussfaktoren.* VDI-Conference on „Fortschrittliche Energiewandlung und -anwendung“; March 13-14, 2001, Ruhr-Universität Bochum, Germany
2000	Karl Frauendorfer, Jens Güssow, Georg Ostermaier: *Multistage stochastic programming in power system management: a comparison of barycentric approximation with decomposition by stochastic dynamic programming;* ISMP 2000, 17th International Symposium on Mathematical Programming, Atlanta, August 7 – 11, 2000
2000	Karl Frauendorfer, Georg Ostermaier: *Enhanced Profits in Power Industry by Multistage Stochastic Programming;* 4th GAMM/IFIP Workshop on Stochastic Optimization; Federal Armed Forces University Munich, June 27-29, 2000, Neubiberg/München

1999	Karl Frauendorfer, Jens Güssow, Georg Ostermaier: *Stochastische Optimierung der Einsatzplanung komplexer Kraftwerkssysteme im Umfeld volatiler Energiemärkte;* 2nd International Energy Symposium, New Worlds, Stift Ossiach, Carinthia, Austria, 22nd-24th September 1999
1999	Georg Ostermaier: *Stochastic Optimization of Complex Power Systems in Volatile Energy Markets;* 10th INFORMS Applied Probability Conference; University of Ulm; July 26-28, 1999
1999	Karl Frauendorfer, Jens Güssow, Georg Ostermaier*: Stochastic Multi-stage Programming in Electrical Power Systems Operation and Man-agement;* Uncertainty Workshop, Palo Alto, CA, July 12-16, 1999
1998	Karl Frauendorfer, Jens Güssow, Georg Ostermaier: *Stochastische Optimierung in der Kraftwerkseinsatzplanung;*Workshop Stochastics, Vienna, Austria, September 1998

HOBBIES:

Skiing, Cycling, Organic Farming
Organic Farming (Georg has a farm in southern Bavaria. His family cultivates ca. 51 hectare of land and grows organic cereals (wheat, barley, soybeans, rye etc.)