Ben Goertzel, Ph.D.

*Cross-disciplinary entrepreneur, scientist,
mathematician, engineer, writer, speaker*

**CEO and Chief Scientist:
SingularityNET**

**Chairman:
OpenCog Foundation, Artificial General Intelligence Society, Humanity+**

**Chief Scientist:
Rejuve, Singularity Studio, Xccelerando Media, SingularityDAO**

**Chief AI Scientist:
SophiaDAO**

+1 240 505 6518
ben@goertzel.org

Educational Qualification:

Ph.D. in Mathematics, 1989
Temple University, Philadelphia
Dissertation title: "A Multilevel Approach to Global Optimization."

B.A. in Mathematics, 1985
Simon's Rock College, Great Barrington MA

Scientific Record:

- 16 authored books in AI, cognitive science, related areas
- 11 edited books, 4 edited journal Special Issues
- ~150 scientific papers in refereed journals and conferences
- Dozens of journalistic articles and public talks on science and technology topics
- Founded and steers the Artificial General Intelligence conference series
- Organizer of multiple workshops on AI, future technology, linguistics, bioinformatics, etc.
- Leader of the OpenCog open-source project for AI, NLP and cognitive robotics
- Numerous AI research grants in US, Hong Kong, China
- ***See curriculum vita (at the end of this document) for details***

Core Competencies:

- *Expertise in multiple scientific and technical areas* including but not limited to (in alphabetical order): **artificial intelligence, bioinformatics, cognitive and perceptual psychology, cognitive robotics, computational finance, blockchain, data mining,**

natural language processing, pure and applied mathematics, simulation modeling, systems biology, text mining

- Expertise in many aspects of *computer graphics and game development*, including "serious games" for training purposes
- *Teaching*, in multiple subjects (mathematics, computer science, psychology, business) at levels from remedial to graduate
- *Software design*, including object-oriented and generic design patterns, and design for digital and parallel architectures
- *Robotics hardware design*, focused on humanoid robotics but also including factory robots and other devices
- *Managing and leading software teams* carrying out both research and product development, mainly using an agile development methodology
- *Design of tokenomic systems*, i.e. systems for regulating and growing decentralized software and human ecosystems via integrating blockchain and other technologies
- *Upper management experience*: CEO, CTO and Chief Scientist experience in small to mid-sized software businesses
- *Programming*, mainly on Unix platforms: C++, C, Java, python, Haskell, Ruby. (Note that while I still like to code, it has been many years since I've done serious programming-intensive work on a daily basis; I've been doing much more of designing software, managing programmers and writing prototype code here and there.)
- *Excellent writing skills* – both technical and scientific writing, and extensive journalistic writing
- *Sales and biz dev* – experience selling software services and enterprise software to government agencies, corporations and universities
- *Event planning* – have organized numerous international conferences and workshops
- *Public speaking* – dozens of speeches, in front of large and diverse audiences

Work Experience:

CEO and Chief Scientist, SingularityNET, 2017-

- Chief founder of blockchain-based decentralized platform for AI-as-a-service and AGI R&D
- Evangelism for the project and its vision
- General management of all aspects of project operation
- Close guidance of the project's AI R&D and AI solutions development groups
- Chief Scientist role in SingularityNET spinoff projects including Rejuve, Xccelerando Media, NuNet, Singularity Studio, SophiaDAO, SingularityDAO

Chief Scientist, Hanson Robotics, 2014-2019
Chief Science Advisor, Hanson Robotics, 2019-2020

- Leadership of the AI and other software R&D aspects of Hanson Robotics' human-scale robotics initiatives
- Business and technical leadersihp of the MindCloud spin-off of Hanson Robotics, developing cloud-based intelligent agent control software for diverse vertical markets

- Management of a team of scientists and programmers, interfacing with the business and software development sides of the company

Chairman and Founder. 2008-
OpenCog Foundation

- Coordinates an international team of software developers building an open source software platform aimed at advanced Artificial Genreal Intelligence (http://opencog.org)

Chief Scientist, 2011-2015
Aidyia Holdings

- Leadership of the scientific research aspect of a hedge fund applying advanced AI tools to the financial markets
· Management of a team of scientists and programmers, interfacing with the

Chairman and Chief Scientific Advisor, 2011 -
present CEO and Chief Scientist, 2001-2011
Novamente LLC, Washington DC

- Overall business management
- Led a team including 15 programmers and scientists, plus 2 sales/marketing staff
- Developed multiple novel algorithms for machine learning, probabilistic reasoning, and natural language processing
- Created the Novamente PetBrain software for controlling virtual pets in games and virtual worlds, to be launched in an online children's game in April 2010
- Created two cognitive architectures: the Novamente Cognition Engine and the open-source OpenCog engine
· Launched the OpenCog open-source AI project (http://opencog.org)
- Created the (now open-source) RelEx system for English language parsing, semantic analysis and generation
- Secured 20+ AI software consulting contracts for corporate and government customers, on projects including:
    o StockMood.com, a website for analyzing the sentiment of financial news, which won the Thomson Reuters award at TechCrunch 2008
    o Intelligent virtual dogs in virtual worlds for Electric Sheep Company
    o Interactive natural language search and knowledge entry tools for US Army Intelligence, via a subcontract to Object Sciences Corp.
    o Language processing tools underlying smart.fm's language learning website
    o Datamining software for multiple customers in the medical, marketing, financial and other sectors
    o News-based and quantitative prediction systems for stocks and futures
    o Automated scientific discovery from biomedical text, for the NIH Clinical Center
    o Spatiotemporal reasoning architecture for IARPA
    o Metalearning project for IARPA (subcontract to Dartmouth College)
    o ICARUS brain simulation project for IARPA (subcontract to Lockheed Martin)
    o Partnership on game AI with Hong Kong Polytechnic University

Scientific Advisor, 2011 - present
Chief Technology Officer, 2010-2011
Genescient Corp, Irvine, CA

- Leadership of effort applying machine learning technology to analyze genomic data regarding long-lived fruit flies, incorporating mouse and human data as appropriate
- Development of novel techniques for discovering drug targets and drugs based on genomic data
- Development of biopharma-oriented business models and strategies based on the results of statistical and machine learning analysis of genomics data

Chairman and Chief Scientific Advisor, 2011-2016
CEO and Chief Scientist, 2002 -2011
Biomind LLC, Seattle WA

- Overall business management
- Led a team including 7 programmers and biologists, plus 1 sales staff
- Developed multiple novel algorithms for analyzing microarray and SNP data
- Applied these methods to make multiple important discoveries, e.g.
    - The genetic cause for Parkinson's Disease in heteroplasmic mitochondrial mutations
    - The genetic basis of Chronic Fatigue Syndrome in mutations in genes coding for neurotransmitters
- Led the creation of the ArrayGenius product for microarray data analysis
- Sold ArrayGenius to customers including the NIH and CDC
- Led the creation of the analytics module of the the ImmPort web portal for NIH-NIAID
- Launched the OpenBiomind open-source toolkit for analyzing microarray, SNP and other biological data
- Raised >$400K in angel funding

Research Associate Professor, 2005-2006
Applied Research Lab for National and Homeland Security
Virginia Tech National Capitol Region

- Evaluated AI and language processing software products for use in the NSA
- Developed technology providing superior automated "entity extraction" from text
- Developed unique adaptive text search technology based on specific NSA requirements

Research Associate Professor of Computer Science,
2001-2002 University of New Mexico, Albuquerque NM

- Carried out research in AI and bioinformatics
- Taught artificial intelligence

Chief Technology Officer, 1997-2001
Webmind Inc. (initially named Intelligenesis Corp.), New York City

- Managed 80+ scientists and engineers

- Managed research projects in multiple AI areas including machine learning, natural language processing, reasoning, and artificial general intelligence
- Managed development of several products including
  - Webmind Market Predictor (a text-based trading system, now in use at Advanced Prediction Corp.)
  - Webmind Classification System (a system for classifying texts based on topic and sentiment)
  - Webmind Recommendation System, a fuzzy recommendation system for websites
- Helped raise $21M in angel and venture money
- Created and presented numerous business plans and customer presentations

Associate Professor, 1997-1998
College of Staten Island, City University of New York

- Carried out AI research
- Taught software development, AI and analysis of algorithms

Research Fellow in Cognitive Science,
1995-1996 University of Western Australia,
Perth

- Carried out research in multiple areas including:
  - Artificial intelligence and mathematical psychology
  - Nonlinear modeling of human vision and olfaction
  - Neural net modeling of insect cognition and olfaction
  - Ecological modeling
- Designed and taught interdisciplinary undergraduate courses in cognitive science and neural networks
- Co-founded an interdisciplinary degree program in cognitive science

Senior Lecturer in Computer Science, 1994
Waikato University, Hamilton, New Zealand

- Carried out research in multiple areas including:
  - Artificial intelligence and mathematical psychology
  - Fractal graphics
  - Algorithmic music composition
- Taught computer graphics and user interface programming
- Co-founded an interdisciplinary degree program in cognitive science

Assistant Professor of Mathematics, 1989-1993
University of Nevada, Las Vegas

- Carried out research in multiple areas including:
  - Artificial intelligence and mathematical psychology
  - Nonlinear dynamics
- Taught computer graphics and user interface programming
- Co-founded an interdisciplinary degree program in cognitive science

Curriculum Vita

Following is my academic "Curriculum Vita", consisting of a list of my books and papers and related accomplishments.

- Patent
- Conference Leadership
- Research Grants and Government Contracts
- Public Speaking
- Publications: Books
- Publications: Journal and Conference Papers
- Journalistic Articles

PATENT

United States Patent 6532449: "Method of numerical time series prediction based on non-numerical time series," was granted to myself and Lisa Pazer in 2001. The target application for this patent was the prediction of financial markets based on patterns observed in online news.

CONFERENCE LEADERSHIP

2020
- **AGI-20** (Thirteenh Conference on Artificial General Intelligence), *Chairman*
- **COVID Simulation Summit**, *Chairman*
- **POST-PANDEMIC,** *Chairman*
- **OpenCogCon 2020,** *Chairman*

2019
- **AGI-19** (Twelfth Conference on Artificial General Intelligence), *Chairman*

2018
- **AGI-18** (Eleventh Conference on Artificial General Intelligence), *Chairman:* August 2018, Prague (and co-director of HLAI-18, a multi-conference of which AGI-18 is a part)
- **Humanity+ Beijing**

2017
- **AGI-17** (Tenth Conference on Artificial General Intelligence), *Chairman:* July 2016, Melbourne, Australia

2016
- **AGI-16** (Ninth Conference on Artificial General Intelligence), *Chairman:* July 2016, New School, New York City (and co-director of HLAI-16, a multi-conference of which AGI-16 is a part)
- **Future of Mind**, one-day workshop, *Co-chairman:* July 2016, New School, New York City

2015
- **AGI-15 (**Eighth Conference on Artificial General Intelligence), *Chairman:* August 2015, Berlin, Germany

2014
- **AGI-14 (**Seventh Conference on Artificial General Intelligence), *Chairman:* August 2014, Laval University, Quebec City
- **ICRA Workshop on Generally Intelligent Humanoid Robotics**, *Chairman:* June 2014, workshop @ IEEE ICRA Robotics conference, Hong Kong

2013

- **AGI-13** (Sixth Conference on Artificial General Intelligence), *Organizing Committee*: August 2013, Peking University, Beijing
- **Special Session on General Intelligence in Embodied Agents, in IEEE Symposium on Human-Level AI**, *Chairma*n: April 2013, Singapore
- **Humanity+ Beijing**

2012
- **AGI-12** (Fifth Conference on Artificial General Intelligence), *Chairman*: August 2012, Oxford University, UK

2011
- **AGI-11** (Fourth Conference on Artificial General Intelligence), *Organizing Committee*: August 2011, Google campus, Mountain View CA
- **Humanity+ Hong Kong**, *Conference Co-chair*: November 2011, Hong Kong Polytechnic University

2010
- **Humanity+ @ CalTech**, *Conference Co-chair*: Pasadena, California, December 2010
- **AGI-10** (Third Conference on Artificial General Intelligence), *Organizing Committee*: March 2010, Lugano
- **AGI-10 Workshop on the Future of AGI and Roadmaps to AGI**, *Organizer*
- **ICAI 2010** (International Conference on Advanced Intelligence), *Program Committee Co-Chair*, August 2010. Beijing
- **BICA-10** (First Conference on Biologically Inspired Computing Architectures), *Organizing Committee*, November 2010, Washington DC

2009
- **AGI-09** (Second Conference on Artificial General Intelligence), *Conference Chair*: March 2009, Washington DC
- **First AGI Summer School**, Xiamen University, Xiamen, China, June-July 2009
- **Machine Consciousness Workshop** (post-conference workshop to Toward a Science of Consciousness 2009), June 2009, Hong Kong

2008
- **AGI-08** (First Conference on Artificial General Intelligence; agi-08.org), *Program Committee Co-chair, Organizing Committee Member*: March 2008, Memphis Tennessee
- **WCCI 2008, Special Session on Human-Level AI**, *Co-chair*: June 2008, Hong Kong

2006
- **AGI-06** (Workshop on Artificial General Intelligence), *Conference Chair*: March 2006, Bethesda Maryland
- **ACL (Association for Computational Linguistics), Bio-NLP Workshop**, *Co-chair*: July 2006, New York

RESEARCH GRANTS AND GOVERNMENT CONTRACTS

(Note: most of my work in the period 2001- has been commercially rather than research grant or government funded.)

- **2018-2019:** Two research grants, providing about US$150K each, from Cisco to Hong Kong Poly U, for AI work focused on computer vision and network analytics
- **2014-2016**: Hong Kong Innovation in Technology Foundation (ITF) grant for "Media Minds: A Software Toolkit for Creating Intelligent Virtual Agents for Guiding Media Consumption and Browsing", a collaborative grant between Hong Kong Polytechnic University and my companies Novamente LLC and Practical Visionaries Limited, funding 7 programmers to work on the OpenCog AI system with an orientation toward natural language dialogue. Prof. Gino Yu was PI of the grant, I was lead corporate sponsor and very hands-on in helping direct the R&D.

- **2013-2014**: Hong Kong Innovation in Technology Foundation (ITF) grant for "Software Enabling Toy Robots to Learn, Communicate, Emotionally Bond and Display Individual Personalities", a collaborative grant between Hong Kong Polytechnic University and my companies Novamente LLC and Practical Visionaries Limited, alongside other firms such as Hanson Robotics, funding 6 programmers to work on the OpenCog AI system with an orientation toward robotics and other embodied systems. Prof. Gino Yu was PI of the grant, I was lead corporate sponsor and very hands-on in helping direct the R&D.
- **2012-2014,** Hong Kong SERAP loan for ""Artificial Intelligence and Computational Linguistics based Prediction of Proce nad Volume Movement on the Hong Kong Stock Market" – approximately USD$600K over 2 years. This loan was given to Aidyia Limited in the form of 50-50 matching funding, on terms where repayment of the loan is required only if the research leads directly to profits exceeding a certain amount.
- **2011-2012**. DARPA DCAPS program (involving using machine learning to predict suicidal behavior among military personnel). I co-authored the grant and was then a consultant on the project; the prime was Poulin Holdings.
- **2010-2014**: IARPA Icarus (Integrated Cognitive-Neuroscience Architectures for Understanding Sensemaking). My company Novamente LLC was a subcontractor to Lockheed Martin on this grant, which I co-authored.
- **2010-2011**. IARPA grant for Metalearning; I was a consultant on the "Dartmouth Metalearning Working Group" grant, a one-year grant funded under IARPA's open BAA
- **2010-2012:** Hong Kong Innovation in Technology Foundation (ITF) grant for "A Software Toolkit for Artificial General Intelligence in Video Games," a collaborative grant between Hong Kong Polytechnic University and my company Novamente LLC, funding 7 programmers to create video game characters controlled by the OpenCog AI system. Prof. Gino Yu was PI of the grant, I was lead corporate sponsor and very hands-on in helping direct the R&D.
- **2009-2012:** Chinese NSF Grant for "Imitation and Reinforcement Learning in a Humanoid Robot", for work at Xiamen University, in the Artificial Brain Lab of which I am co-supervisor
- **2008**: IARPA contract for "Change Detection"; work exploring the application of spatial, temporal and contextual inference for detecting patterns and resolving queries related to large, heterogeneous knowledge stores
- **2008**: US Air Force (AFOSR/AOARD) grant for research involving the use of AI agents in a 3D simulation world to engage in game-playing behavior with humans of different cultures, with a purpose of studying cross-cultural behavior patterns
- **2008-2010**: Research grant for AGI R&D, from Enhanced Education
- **2005-2009**: Contracts and purchase orders from the *National Institutes of Health (NIAID)*, under the BISTI program, for software and services related to the ImmPort portal for analysis of immunological microarray and SNP data
- **2005**: Contract from NIH Clinical Center for the creation of a prototype software system carrying out information extraction from biomedical research abstracts
- **2003-2004:** Contracts and purchase orders from the *Centers for Disease Control and Prevention*, for analysis of microarray, SNP and clinical data regarding Chronic Fatigue Syndrome
- **2003-2004**: Contracts for natural language processing software development, from Object Sciences Corporation, largely via a contract vehicle funded through INSCOM (US Army intelligence)
- **2001**: *$100K* grant from *Jeffrey Epstein Foundation*, for artificial general intelligence research
- **1996-99**: Together with Dr. Steve Lewandowsky and Michael Kalish I raised significant funding for computer equipment and computer support personnel for the UWA Cognitive Science Programme, from the *University of Western Australia Initiatives Fund*,.
- **1993-96**: I obtained several small research grants from *University of Nevad*a, *Waikato University* and the *Australian Research Council*

PUBLIC SPEAKING

I have given many dozens (perhaps hundreds) of conference and other talks since 2005, and a couple dozen during my earlier career before that; I have not kept careful track and collated a list. Videos of many of my talks can be found on YouTube;

I have also done some invited speaking for private government or corporate audiences, generally on future-of-technology or AI themes.

PUBLICATIONS: BOOKS

Authored Books

*(books that are not mainly technical, but present more "humanities" oriented discussions of technical topics, are prepended with a * in the list)*

1. * Goertzel, Ben (2016). The AGI Revolution. Humanity+ press (and currently being published in China in translation)
2. * Goertzel, Ben (2014). *Ten Years to the Singularity If We Really Really Try, and Other Essays on AGI and Its Implications*, 2014, Humanity+ Press (and currently being published in China in translation)
3. * Goertzel, Ben (2014). *Between Ape and Artilect: Interviews with Pioneers of Artificial General Intelligence and Other Transformative Technologies*, 2013, Humanity+ Press
4. Goertzel, Ben, Cassio Pennachin and Nil Geisweiller (2014). *Engineering General Intelligence, Vol. 1*. Atlantis Press.
5. Goertzel, Ben, Cassio Pennachin and Nil Geisweiller (2014). *Engineering General Intelligence, Vol. 2*. Atlantis Press.
6. Goertzel, Ben, Cassio Pennachin, Lucio Coelho, Murilo Queiroz, Predrag Janicic, Nil Geisweiller (2012). *Real-World Reasoning: Spatial, Temporal and Spatiotemporal Logic,* Atlantis Press
7. * Goertzel, Ben (2010). *A Cosmist Manifesto: Practical Philosophy for the Posthuman Age*. Humanity+ Press.
8. Goertzel, Ben, Matthew Ikle', Izabela Freire Goertzel and Ari Heljakka (2008). *Probabilistic Logic Networks*. Springer Verlag
9. Goertzel, Ben (2006). *The Hidden Pattern: A Patternist Philosophy of Mind,* Brown-Walker Press
10. * Goertzel, Ben and Stephan Vladimir Bugaj (2006). *The Path to Posthumanity*. Academica Press
11. Goertzel, Ben (2002). *Creating Internet Intelligence*. Plenum Press
12. Goertzel, Ben (1997). *From Complexity to Creativity*. Plenum Press
13. Goertzel, Ben (1997). *Chaotic Logic*. Plenum Press
14. * Goertzel, Ted and Ben Goertzel (1995). *Linus Pauling: A Life in Science and Politics*. Basic Books
15. Goertzel, Ben (1993). *The Evolving Mind*. Plenum Press
16. Goertzel, Ben (1993). *The Structure of Intelligence*. Springer-Verlag

Edited Books

*(books that are not mainly technical, but present more "humanities" oriented discussions of technical topics, are prepended with a * in the list)*

1. Goertzel, Ben, Aleksandr I. Panov, Alexey Potapov, Roman Yampolskiy (2020) . Artificial General Intelligence - 13th International Conference, AGI 2020, St. Petersburg, Russia, September 16-19, 2020, Proceedings. Lecture Notes in Computer Science 12177, Springer
2. Patrick Hammer, Pulin Agrawal, Ben Goertzel, Matthew Iklé (2019). Artificial General Intelligence - 12th International Conference, AGI 2019, Shenzhen, China, August 6-9, 2019, Proceedings. Lecture Notes in Computer Science 11654, Springer
3. Matthew Iklé, Arthur Franz, Rafal Rzepka, Ben Goertzel (2018). Artificial General Intelligence - 11th International Conference, AGI 2018, Prague, Czech Republic, August 22-25, 2018, Proceedings. Lecture Notes in Computer Science 10999, Springer
4. Tom Everitt, Goertzel, Ben, Alexey Potapov (2017). Artificial General Intelligence - 10th International Conference, AGI 2017, Melbourne, VIC, Australia, August 15-18, 2017, Proceedings. Lecture Notes in Computer Science 10414
5. Zhongzhi Shi, Goertzel, Ben, Jiali Feng (2017). Intelligence Science I - Second IFIP TC 12 International Conference, ICIS 2017, Shanghai, China, October 25-28, 2017, Proceedings. IFIP Advances in Information and Communication Technology 510, Springer

6. Bas R. Steunebrink, Pei Wang, Goertzel, Ben (2016).   Artificial General Intelligence - 9th International Conference, AGI 2016, New York, NY, USA, July 16-19, 2016, Proceedings. Lecture Notes in Computer Science 9782, Springer * Goertzel, Ben and Ted Goertzel (2015). *The End of the Beginning: Life, Society and Economy on the Brink of the Singularity.* Humanity+ Press.

2. Broderick, Damien and Ben Goertzel, Editors (2014). *The Evidence for Psi: Thirteen Empirical Research Reports.* McFarland

3. Orseau, Laurent, Javier Snaider and Ben Goertzel, Editors (2014). *Proceedings of the Seventh Conference on Artificial General Intelligence*, Springer

4. * Sirius, R.U. and Ben Goertzel, Editors (2013). *Best of H+ Magazine: 2008-2010.* Humanity+ Press

5. Wang, Pei and Ben Goertzel, Editors (2012). *Theoretical Foundations of Artificial General Intelligence*. Atlantis Press.

6. Samsonovich, Alexei, Kamilla Johanssdottir, Antonio Chella and Ben Goertzel, Editors (2010). *Proceedings of the First Conference on Biologically-Inspired Cognitive Architectures.* IOS Press.

7. Goertzel, Ben, Pascal Hitzler and Marcus Hutter, Editors (2009). *Proceedings of the Second Conference on Artificial General Intelligence.* Atlantis Press.

8. Wang, Pei, Ben Goertzel and Stan Franklin, Editors (2008). *Artificial General Intelligence 2008: Proceedings of the First AGI Conference.* IOS Press: Frontiers in Artificial Intelligence and Applications

9. Goertzel, Ben and Pei Wang, Editors (2007). *Advances in Artificial General Intelligence*. IOS Press.

10. Goertzel, Ben and Cassio Pennachin, Editors (2006). *Artificial General Intelligence*. Springer-Verlag.

11. Combs, Allan, Ben Goertzel and Mark Germine, Editors (2003). *Mind in Time.*. Plenum Press

PUBLICATIONS: JOURNAL SPECIAL ISSUES

*   Special Issue on Human-Like Intelligence and Robotics, *IEEE Systems Journal* 11-3, May 2017, Co-Edited with Jiang Min, Jacek Mandziuk and Noayuki Kubota
*   Special Issue on Psi and the Nonlocal mind, *Journal of Nonlocality,* 2016
*   Special Issue on Mind Uploading, *Journal of Machine Consciousness*, July 2012. Co-edited with Matthew Ikle
*   Special Issue on Artificial Brains, *Neurocomputing,* December 2010. Co-edited with Hugo de Garis

PUBLICATIONS: JOURNAL AND CONFERENCE PAPERS

*   *Note that since I left academia in 1997, the vast majority of my research has been embodied in commercial or open source software and has not been published formally.*

*   *Papers submitted for publication not listed*

2021
*   Goertzel, Ben (2021). Paraconsistent Foundations for Quantum Probability. Posted on Arxiv.org. Unrefereed.
*   Goertzel, Ben (2021).   Patterns of Cognition: Cognitive Algorithms as Galois Connections Fulfilled by Chronomorphisms On Probabilistically Typed Metagraphs. Posted on Arxiv.org. Unrefereed.
*   Goertzel, Ben (2021).   Info-Evo: Using Information Geometry to Guide Evolutionary Program Learning. Posted on Arxiv.org. Unrefereed.
*   Goertzel, Ben (2021).   The General Theory of General Intelligence: A Pragmatic Patternist Perspective. Posted on Arxiv.org. Unrefereed.
*   *(2021 publication list not complete here)*

2020

*   Goertzel, Ben (2020). What Kind of Programming Language Best Suits Integrative AGI? AGI 2020: 142-152

- Goertzel, Ben, Andrés Suárez-Madrigal, Gino Yu (2020). Guiding Symbolic Natural Language Grammar Induction via Transformer-Based Sequence Probabilities. AGI 2020: 153-163
- Goertzel, Ben, Mike Duncan, Debbie Duong, Nil Geisweiller, Hedra Seid, Abdulrahman Semrie, Man Hin Leung, Matthew Iklé (2020). Embedding Vector Differences Can Be Aligned with
- Goertzel, Ben (2020). Grounding Occam's Razor in a Formal Theory of Simplicity. Posted on Arxiv.org. Unrefereed.
- Goertzel, Ben (2020). Uncertain Linear Logic via Fibring of Probabilistic and Fuzzy Logic. Posted on Arxiv.org. Unrefereed.
- Goertzel, Ben (2020). Folding and Unfolding on Metagraphs. Posted on Arxiv.org. Unrefereed.
- Goertzel, Ben (2020). Paraconsistent Foundations for Probabilistic Reasoning, Programming and Concept Formation. Posted on Arxiv.org. Unrefereed.

2019
- Matthew Iklé, Ben Goertzel, Misgana Bayetta, George Sellman, Comfort Cover, Jennifer Allgeier, Robert Smith, Morris Sowards, Dylan Schuldberg, Man Hin Leung, Amen Belayneh, Gina Smith, David Hanson (2019). Using Tononi Phi to Measure Consciousness of a Cognitive System While Reading and Conversing. AAAI Spring Symposium: Towards Conscious AI Systems 2019
- Nil Geisweiller, Ben Goertzel (2019). An Inferential Approach to Mining Surprising Patterns in Hypergraphs. AGI 2019: 59-69
- Alex Glushchenko, Andres Suarez, Anton Kolonin, Ben Goertzel, Oleg Baskov (2019). Programmatic Link Grammar Induction for Unsupervised Language Learning. AGI 2019: 111-120
- Goertzel, Ben (2019). Maximal Algorithmic Caliber and Algorithmic Causal Network Inference: General Principles of Real-World General Intelligence$f$. SSCI 2019: 968-973
- Goertzel, Ben (2019). Distinction Graphs and Graphtropy: A Formalized Phenomenological Layer Underlying Classical and Quantum Entropy, Observational Semantics and Cognitive Computation. Posted on Arxiv.org. Unrefereed.
- Anton Kolonin, Ben Goertzel, Cassio Pennachin, Deborah Duong, Marco Argentieri, Nejc Znidar (2019). A Reputation System for Marketplaces - Viability Assessment. Posted on Arxiv.org. Unrefereed.
- Anton Kolonin, Ben Goertzel, Cassio Pennachin, Deborah Duong, Matt Iklé, Nejc Znidar, Marco Argentieri: A Reputation System for Multi-Agent Marketplaces (2019). Posted on Arxiv.org. Unrefereed.

2018
- Alex Glushchenko, Andres Suarez, Anton Kolonin, Ben Goertzel, Claudia Castillo, Man Hin Leung, Oleg Baskov (2018): Unsupervised Language Learning in OpenCog. AGI 2018: 109-118
- Anton Kolonin, Ben Goertzel, Deborah Duong, Matt Iklé (2018). A Reputation System for Artificial Societies. Posted on Arxiv.org. Unrefereed.
- Anton Kolonin, Ben Goertzel, Deborah Duong, Matt Iklé, Nejc Znidar (2018). Reputation System for Online Communities (in Russian). Unrefereed.

2017
1. Goertzel, Ben (2017). From Abstract Agents Models to Real-World AGI Architectures: Bridging the Gap. AGI 2017: 3-12
2. Goertzel, Ben (2017). A Formal Model of Cognitive Synergy. AGI 2017: 13-22
3. Ruiting Lian, Goertzel, Ben, Linas Vepstas, David Hanson, Changle Zhou (2017). Symbol Grounding via Chaining of Morphisms. CoRR abs/1703.04368. Posted on Arxiv, non-refereed.
4. Goertzel, Ben (2017). Cost-Based Intuitionist Probabilities on Spaces of Graphs, Hypergraphs and Theorems. CoRR abs/1703.04382. Posted on Arxiv, non-refereed.
5. Goertzel, Ben, Nil Geisweiller, Chris Poulin (2017). Metalearning for Feature Selection. CoRR abs/1703.06990. Posted on Arxiv, non-refereed.
6. Goertzel, Ben, Julia Mossbridge, Eddie Monroe, David Hanson, Gino Yu (2017). Humanoid Robots as Agents of Human Consciousness Expansion. Posted on Arxiv, non-refereed.
7. Jiang, Min, Jacey Mandziuk, Ben Goertzel, Naoyuki Kubota (2017). Guest Editorial Special Issue on Human-Like Intelligence and Robotics. IEEE Syst. J. 11(3): 1269-1271 (2017)
8. Goertzel, Ben and Eddie Monroe (2017). Toward a General Model of Human-Like General Intelligence. AAAI Fall Symposia 2017: 344-347

2016
1. Goertzel, Ben, Ted Goertzel and Zarathustra Goertzel (2016). The global brain and the emerging economy of abundance: Mutualism, open collaboration, exchange networks and the automated commons. Technological Forecasting and Social Change

2. Goertzel, Ben, Misgana Bayetta Belachew, Matthew Iklé, Gino Yu (2016).   Controlling Combinatorial Explosion in Inference via Synergy with Nonlinear-Dynamical Attention Allocation. AGI 2016: 334-343
3. Goertzel, Ben (2016). Probabilistic Growth and Mining of Combinations: A Unifying Meta-Algorithm for Practical General Intelligence. AGI 2016: 344-353

2015

1. Goertzel, Ben (2015). Artificial General Intelligence. Scholarpedia 10(11)
2. Ke, Shujing, Ben Goertzel, Pieter Spronck, Alex van der Peet, Oliver Watkins, Gino Yu (2015). Recursive Decomposition of Numeric Goals, Exemplified with Automated Construction Agents in 3D Minecraft Worlds. SAI Intelligent Systems Conference, Intellisys 2015
3. Goertzel, Ben (2015). Are there Deep Reasons Underlying the Pathologies of Today's Deep Learning Algorithms?. Proceedings of AGI-15, Springer Lecture Notes in AI.
4. Goertzel, Ben, Nil Geisweiller, Eddie Monroe, Mike Duncan, Selamawit Yilma, Meseret Dastaw, Misgana Bayetta, Amen Belayneh, Matthew Ikle and Gino Yu (2015). Speculative Scientific Inference via Synergetic Combination of Probabilistic Logic and Evolutionary Pattern Recognition. Proceedings of AGI-15, Springer Lecture Notes in AI.
5. Lian, Ruiting, Changle Zhou, Ben Goertzel, Rodas Solomon, Amen Belayneh and Gino Yu (2015). From Specialized Syntax to General Logic: The Case of Comparatives. Proceedings of AGI-15, Springer Lecture Notes in AI.

2014

1. Goertzel, Ben (2014). GOLEM: Toward an AGI Meta-Architecture Enabling Both Goal Preservation and Radical Self-Improvement, Journal of Experimental & Theoretical Artificial Intelligence, Volume 26, Issue 3, 2014
2. Goertzel, Ben and Gino Yu (2014). A Cognitive API and its Application to AGI Intelligence Assessment, Proceedings of AGI-14, Springer
3. Harrigan, Cosmo, Ben Goertzel, Matthew Ikle and Amen Belayneh (2014). Guiding Probabilistic Logical Inference with Nonlinear Dynamical Attention Allocation, Proceedings of AGI-14, Springer
4. Goertzel, Ben (2014). Characterizing Human‐Like Consciousness: An Integrative Approach. Proceedings of BICA-14. Procedia Computer Science, Springer
5. Goertzel, Ben, David Hanson and Gino Yu (2014). A Software Architecture for Generally Intelligent Humanoid Robotics. Proceedings of BICA-14. Procedia Computer Science, Springer. Earlier version in proceedings of Workshop on General Intelligence for Humanoid Robotics, IEEE-ICRA 2014, Hong Kong.
6. Sadeghi, Keyvan and Ben Goertzel (2014). Uncertain Interval Algebra via Fuzzy/Probabilistic Modeling, FUZZ-IEEE 2014, Beijing, July 2014
7. Goertzel, Ben and Gino Yu (2014). From Here to AGI: A Roadmap to the Realization of Human-level Artificial General Intelligence. IJCNN, Beijing, July 2014
8. Jiang, Min, Yulong Ding, Goertzel Ben, Zhongqiang Huang and Fei Chao (2014). Improving Machine Vision via Incorporating Expectation-Maximization into Deep Spatio-Temporal Learning. IJCNN, Beijing, July 2014
9. Goertzel, Ben (2014). How Might the Brain Represent Complex Symbolic Knowledge? IJCNN, Beijing, July 2014
10. Vepstas, Linas and Ben Goertzel (2014). Learning Language from a Large (Unannotated) Corpus. Posted on Arxiv.org. Unrefereed.

2013

1. Goertzel, Ben et al (2013). The CogPrime Architecture for Embodied Artificial General Intelligence. Proceedings of IEEE Symposium on Human-Level AI, Singapore
2. Goertzel, Ben et al (2013). A Mind-World Correspondence Principle. Proceedings of IEEE Symposium on Human-Level AI, Singapore
3. Goertzel, Ben (2013). Probability Theory Ensues from Assumptions of Approximate Consistency: A Simple Derivation and its Implications for AGI, Proceedings of AGI-13, Springer

4. Goertzel, Ben, Ted Sanders and Jade O'Neill (2013). Integrating Deep Learning Based Perception with Probabilistic Logic via Frequent Pattern Mining, Proceedings of AGI-13, Springer
5. Goertzel, Ben (2014). Lojban++: An Interlingua for Communication Between Humans and AGIs, Proceedings of AGI-13, Springer
6. Goertzel, Ben (2014). The Role of Specialized Intelligent Body-System Networks in Guiding General-Purpose Cognition, Proceedings of AGI-13, Springer

2012

1. Syntax-Semantic Mapping for General Intelligence: Language Comprehension as Hypergraph Homomorphism, Language Generation as Constraint Satisfaction. Ruiting Lian and Ben Goertzel, Hong Kong Polytechnic University and Xiamen University, China
2. Perception Processing for General Intelligence: Bridging the Symbolic/Subsymbolic Gap, Ben Goertzel, Novamente LLC, USA & Hong Kong
3. Pattern Mining for General Intelligence: The FISHGRAM Algorithm for Frequent and Interesting Subhypergraph Mining. Jade O'Neill and Ben Goertzel. Hong Kong Polytechnic University.
4. Ben Goertzel: GOLEM: Toward an AGI Meta-Architecture Enabling Both Goal Preservation and Radical Self-Improvement
5. Goertzel, Ben (2012). When Should Two Minds Be Considered Versions of One Another?, *Journal of Machine Consciousness*, July 2012 http://goertzel.org/ Goertzel_IJMC_Special_Issue.pdf
6. Sam Adams, Itmar Arel, Joscha Bach, Robert Coop, Rod Furlan, Ben Goertzel, J. Storrs Hall, Alexei Samsonovich, Matthias Scheutz, Matthew Schlesinger, Stuart C. Shapiro, John Sowa (2012). Mapping the Landscape of Human-Level Artificial General Intelligence. AI Magazine, Winter 2012. http://aaai.org/ojs/index.php/aimagazine/article/view/2322
7. Loosemore, R.P.W. & Goertzel, B. (2012c). Why an Intelligence Explosion is Probable. To appear in: Eden, A., Moor, J., Soraker, J., & Steinhart, E. (Eds.), The Singularity Hypothesis. Springer. http://richardloosemore.com/docs/2012c_IntelligenceExplosion_rpwl_bg.pdf
8. Goertzel, Ben (2012). Should Humanity Build a Global AI Nanny to Delay the Singularity Until It's Better Understood?, Journal of Consciousness Studies, 19(1-2) http://commonsenseatheism.com/wp-content/uploads/2012/03/Goertzel-Should-Humanity-Build-a-Global-AI-Nanny-to-Delay-the-Singularity-Until-its-Better-Understood.pdf
9. Goertzel, Ben and Joel Pitt (2012). Nine Ways to Bias Open-Source AGI Toward Friendliness. Journal of Evolution and Technology 22-1 http://jetpress.org/v22/goertzel-pitt.htm
10. Goertzel, Ben, Matt Ikle and Jared Wigmore (2012). The Architecture of Human-Like General Intelligence. In Theoretical Foundations of Artificial General Intelligence, Ed. Pei Wang & B. Goertzel, Atlantis Press http://goertzel.org/Goertzel_Foundations_AGI.pdf

2011

1. Cai, Zhenhua, Ben Goertzel, Changle Zhou, Yongfeng Zhang, Min JIan, Gino Yu (2011). Dynamics of a computational affective model inspired by Dörner's PSI theory. Cognitive Systems Research. doi:10.1016/j.cogsys.2011.11.002 http://www.sciencedirect.com/science/article/pii/S1389041711000647

2. Fernando, Nirmal, Nisansa de Silva, Chamilka Wijeratne, Danaja Maldeniya , Shehan Perera, Ben Goertzel. SeMap – Mapping Dependency Relationships into Semantic Frame Relationships. ERU Research Symposium, University of Morutawa http://www.eru.mrt.ac.lk/symposium2011accepted.html

3. Goertzel, Ben (2011). Integrating a Compositional Spatiotemporal Deep Learning Network with Symbolic Representation/Reasoning within an Integrative Cognitive Architecture via an Intermediary Semantic Network. *Proceedings of AAAI Symposium on Cognitive Systems,* Arlington VA, http://goertzel.org/cognitive_systems_2011.pdf

4. Kogut, Paul, June Gordon, David Morgenthaler, John Hummel, Edward Monroe, Ben Goertzel, Ethan Trewhitt and Elizabeth Whitaker (2011). Recognizing Geospatial Patterns with Biologically-Inspired Relational Reasoning. Proceedings of BICA 2011, Arlington VA

5. Goertzel, Ben, Joel Pitt, Jared Wigmore, Nil Geisweiller, Zhenhua Cai, Ruiting Lian, Deheng Huang, Gino Yu (2011). Cognitive Synergy between Procedural and Declarative Learning in the Control of Animated and Robotic Agents Using the OpenCogPrime AGI Architecture. *Proceedings of AAAI-11* [http://www.aaai.org/ocs/index.php/AAAI/AAAI11/paper/view/3562/4096 , http://goertzel.org/Goertzel_AAAI11.pdf]

6. Goertzel, Ben (2011). Lifelong Forgetting: A Critical Ingredient of Lifelong Learning, and its Implementation in the OpenCog Integrative AI Framework. *Proceedings of AAAI-11 Workshop on Lifelong Learning* [http://www.aaai.org/ocs/index.php/WS/AAAIW11/paper/viewPaper/3900]

7. Goertzel, Ben (2011). Imprecise Probability as a Linking Mechanism Between Deep Learning, Symbolic Cognition and Local Feature Detection in Vision Processing. *Proceedings of AGI-11*, Lecture Notes in AI, Springer Verlag [http://goertzel.org/VisualAttention_AGI_11.pdf]

8. Ikle, Matthew and Ben Goertzel (2011). Nonlinear-Dynamical Attention Allocation via Information Geometry, *Proceedings of AGI-11*, Lecture Notes in AI, Springer Verlag [http://goertzel.org/ECAN_v3.pdf]

9. Cai, Zhenhua, Ben Goertzel and Nil Geisweiller (2011). OpenPsi: Realizing Dorner's "Psi" Cognitive Model in the OpenCog Integrative AGI Architecture, *Proceedings of AGI-11*, Lecture Notes in AI, Springer Verlag [http://goertzel.org/OpenPsi_agi_11.pdf]

10. Goertzel, Ben and Matthew Ikle (2011). Three Hypotheses About the Geometry of Mind, *Proceedings of AGI-11*, Lecture Notes in AI, Springer Verlag [http://goertzel.org/MindGeometry_agi_11_v2.pdf]

11. Goertzel, Ben (2011). Self-Programming = Learning about Intelligence-Critical System Features, *Proceedings of Self-Programming Workshop at AGI-11*, Mountain View CA [http://www.iiim.is/wp/wp-content/uploads/2011/05/goertzel-agisp-2011.pdf]

12. Goertzel, Ben, Joel Pitt, Zhenhua Cai, Jared Wigmore, Deheng Huang, Nil Geisweiller, Ruiting Lian, Gino Yu (2011). Integrative General Intelligence in a Minecraft-Type Environment. *Proceedings of BICA-2011*, Arlington VA, http://goertzel.org/goertzel_bica_11.pdf

13. Goertzel, Ben and Jared Wigmore (2011). Cognitive Synergy Is Tricky. *Chinese Journal of Mind and Computation*

2010

1. Ruiting Lian, Ben Goertzel, Rui Liu, Michael Ross,Murilo Queiroz, and Linas Vepstas. Sentence generation for artificial brains: a glocal similarity matching approach. *Neurocomputing*, Dec 2010 [http://www.sciencedirect.com/science/article/pii/S0925231210002717]

2. Goertzel, Ben and Allan Combs. Water Worlds, Naive Physics, Intelligent Life, and Alien Minds. *Journal of Cosmology* 5, 897-904. [http://journalofcosmology.com/SearchForLife115.html]

3. Goertzel, Ben, Lucio Coelho, Mauricio Mudado and Cassio Pennachin. Classifier Ensemble Based Analysis of a Genome-Wide SNP Dataset Concerning Late-Onset Alzheimer Disease. *Journal of Cognitive Informatics,* to appear [http://www.irma-international.org/viewtitle/49132/]

4. Ikle', Matthew and Ben Goertzel. Grounding Possible Worlds Semantics in Experiential Semantics. *Proceedings of the Third Conference on Artificial General Intelligence*, Atlantis Press [http://agi-conf.org/2010/wp-content/uploads/2009/06/paper_55.pdf]

5. Goertzel, Ben, Cassio Pennachin, Samir Araujo, Ruiting Lian, Fabricio Silva, Murilo Queiroz, Welter Silva, Mike Ross, Linas Vepstas, Andre Senna. A General Intelligence Oriented Architecture for Embodied Natural Language Processing. *Proceedings of the Third Conference on Artificial General Intelligence*, Atlantis Press [http://agi-conf.org/2010/wp-content/uploads/2009/06/paper_15.pdf]

6. Goertzel, Ben. Toward a Formal Characterization of Real-World General Intelligence. *Proceedings of the Third Conference on Artificial General Intelligence,* Atlantis Press [http://agi-conf.org/2010/wp-content/uploads/2009/06/paper_14.pdf]

7. Geisweiller, Nil and Ben Goertzel. Uncertain Spatiotemporal Logic for General Intelligence. *Proceedings of the Third Conference on Artificial General Intelligence,* Atlantis Press [http://agi-conf.org/2010/wp-content/uploads/2009/06/paper_12.pdf]

8. De Garis, Hugo, Xiaoxi Chen and Ben Goertzel. The China Brain Project: An Evolutionary Engineering Approach to Building China's First Artificial Brain Consisting of 10,000s of Evolved Neural Net, in *Kansei Engineering and Soft Computing: Theory and Practice*, Edited by Ying Dai, IGI Global Press [http://www.igi-global.com/chapter/kansei-engineering-soft-computing/46407]

9. Goertzel, Ben, Hugo de Garis, Cassio Pennachin, Nil Geisweiller, Samir Araujo ,Joel Pitt, Shuo Chen, Ruiting Lian, Min Jiang, Ye Yang, Deheng Huang (2010). OpenCogBot: Achieving Generally Intelligent Virtual Agent Control and Humanoid Robotics via Cognitive Synergy. *Proceeedings of ICAI 2010*, Beijing. [http://goertzel.org/ICAI_CogSyn_paper.pdf]

10. Goertzel, Ben, Hugo de Garis. Shuo Chen, Ruiting Lian, Min Jiang (2010). Artificial Brains: a Review of the State of the Art and a Roadmap for Future Development. *Proceeedings of ICAI 2010*, Beijing.

11. Goertzel, Ben, and Ruiting Lian (2010). A Probabilistic Characterization of Fuzzy Set Membership, with Application to Mixed Fuzzy-Probabilistic Inference. *Proceeedings of ICAI 2010*, Beijing. [http://goertzel.org/MyPapers/FuzzyProbabilistic.pdf]

12. Hugo de Garis, Chen Xiaoxi, Yang Ye, Chen Shuo, Ben Goertzel, and Ruiting Lian (2010). "Object/Gesture Recognition Software in the "China Brain Project," *Proceedings of ICCI 2010*, Beijing [http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5599827]

13. Goertzel, Ben, Ruiting Lian, Itamar Arel, Hugo de Garis, and Chen Shuo (2010). World Survey of Artificial Brains Part 2: Biologically-Inspired Cognitive Architectures. *Neurocomputing*, Dec 2010 [http://web.eecs.utk.edu/~itamar/Papers/NeuroComputing2010.pdf]

14. De Garis, Hugo, Chen Shuo, Ben Goertzel and Ruiting Lian. (2010). World Survey of Artificial Brains Part 1: Large-Scale Brain Simulations. *Neurocomputing,* Dec 2010 [http://www.patternsinthevoid.net/blog/wp-content/uploads/2010/12/2009-A-world-survey-of-artificial-brain-projects-Part1_Large-scale-brain-simulations.pdf]

15. Goertzel, Ben, Lucio Coelho, Mauricio Mudado and Cassio Pennachin (2010). Classifier Ensemble Based Analysis of a Genome-Wide SNP Dataset Concerning Late-Onset Alzheimer Disease. *International Journal of System Science and Cognitive Informatics.* [http://www.igi-global.com/article/international-journal-software-science-computational/49132] [http://www.irma-international.org/viewtitle/49132/]

16. Duong, Deborah, Nicholas Stone, Ben Goertzel, and Jim Venuto. "Indra: Emergent Ontologies from Text for Feeding Data to Simulations." *Spring Simulation Interoperability Workshop*, Orlando, April 12-16 2010 [http://www.scs.gmu.edu/~dduong/SIWindra.pdf]

17. Baum, Seth D., Ben Goertzel, and Ted G. Goertzel. "How long until human-level AI? Results from an expert assessment". Technological Forecasting & Social Change, forthcoming, DOI 10.1016/j.techfore.2010.09.006.
[http://sethbaum.com/ac/2011_AI-Experts.pdf]

2009

1. Goertzel, Ben and Pennachin, Cassio. The Collective Pet Unconscious: Balancing Intelligence and Individuality in Populations of Learning-Enabled Virtual Pets, *The Reign of Catz and Dogz Symposium, ACM-CHI,* Boston, 2009
[http://66.49.222.210/file/Goertzel.pdf]

2. Goertzel, Ben. OpenCogPrime: A Cognitive Synergy Based Architecture for General Intelligence. *International Conference on Cognitive Informatics*, Hong Kong, 2009 [http://goertzel.org/dynapsyc/2009/OpenCogPrime.pdf]

3. Goertzel, Ben. Cognitive Synergy: A Universal Principle for General Intelligence?, *International Conference on Cognitive Informatics*, Hong Kong, 2009 [http://goertzel.org/dynapsyc/2009/CognitiveSynergy.pdf]

4. Goertzel, Ben. The Embodied Communication Prior: A Characterization of General Intelligence in the Context of Embodied Social Interaction. *International Conference on Cognitive Informatics*, Hong Kong, 2009 [http://goertzel.org/dynapsyc/2009/EmbodiedCommunicationPrior.pdf]

5. Goertzel, Ben, Lucio Coelho, Mauricio Mudado and Cassio Pennachin. *Classifier Ensemble Based Analysis of a Genome-wide SNP Dataset Concerning Late-Onset Alzheimer Disease*. International Conference on Cognitive Informatics, Hong Kong, 2009 [http://www.igi-global.com/article/international-journal-software-science-computational/49132] [http://www.irma-international.org/viewtitle/49132/

6. Goertzel, Ben. All Things Are Conscious, But Some Things Are More Conscious Than Others: A Panpsychist Approach to Quantifying Intensity of Consciousness in Natural and Engineered Systems. *Machine Consciousness Workshop, Toward a Science of Consciousness,* Hong Kong, 2009

7. Goertzel, Ben and Stephan Vladimir Bugaj. AGI Preschool: A Framework for Evaluating Early-Stage Human-like AGIs. *Proceedings of the Second Conference on Artificial General Intelligence*, Atlantis Press.
[http://agi-conf.org/2009/papers/paper_61.pdf]

8. Ikle, Matthew, Joel Pitt, Ben Goertzel and George Sellman. Economic Attention Networks: Associative Memory and Resource Allocation for General Intelligence. *Proceedings of the Second Conference on Artificial General Intelligence*, Atlantis Press.
[http://agi-conf.org/2009/papers/paper_63.pdf]

9. Looks, Moshe and Ben Goertzel. Program Representation for General Intelligence. *Proceedings of the Second Conference on Artificial General Intelligence*, Atlantis Press. [http://agi-conf.org/2009/papers/paper_69.pdf]

10. Goertzel, Ben. OpenCog NS: A Deeply-Connected, Hybrid Neural-Symbolic Architecture, *Proceedings of BICA-2010*, Alexandria VA [http://goertzel.org/neurosym.pdf]

11. Goertzel, Ben, Lucio Coelho and Cassio Pennachin. Identifying Potential Biomarkers for Chronic Fatigue Syndrome via Classification Model Ensemble Mining. in *Methods of Micorarray Data Analysis VI,* edited by McConnell, P, Lim, S., and A.J. Cuticchia. Scotts Valley, California: CreateSpace Publishing, 2009). [http://scholar.googleusercontent.com/scholar?q=cache:E6kr3kyjSHAJ:scholar.google.com]

12. Goertzel, Ben. Mirror Man: a speculative case study of the synergetic potential of data visualization and virtual worlds. In *Working Through Synthetic Worlds*, Ed. By Cap Smith, Kenneth Kisiel and Jeffrey Morrisson, Ashgate Press [http://www.ashgatepublishing.com/default.aspx?page=637&calctitle=1&pageSubject=3019&sort=pubdate&forthcoming=0&title_id=8893&edition_id=12078]

13. Wang, Yingxu, et al [incl. Ben Goertzel]. Perspectives on Cognitive Informatics and Cognitive Computing. *International Conference on Cognitive Informatics*, Hong Kong, 2009 and *Journal of Cognitive Informatics 4-1* [http://enel.ucalgary.ca/People/wangyx/Publications/Papers/aI/IJCINI-4101-CI&CC.pdf]

2008

1. Goertzel, Ben, Lucio Souza, Mauricio Mudado and Cassio Pennachin . Identifying the Genes and Genetic Interrelationships Underlying the Impact of Calorie Restriction on Maximum Lifespan: An Artificial Intelligence Based Approach. *Rejuvenation Research* [http://www.liebertonline.com/doi/pdfplus/10.1089/rej.2007.0627]

2. Goertzel, Ben; Aam, O.; Smith, F.T.; Palmer, K. Mirror Neurons, Mirrorhouses, and the Algebraic Structure of the Self. *Cybernetics & Human Knowing*, Volume 15, Number 1, 2008 , pp. 9-28(20) [http://www.goertzel.org/dynapsyc/2007/mirrorself.pdf]

3. Goertzel, Ben and Hugo de Garis. XIA-MAN: An Integrative, Extensible Architecture for Intelligent Humanoid Robotics. *AAAI Symposium on Biologically-Inspired Cognitive Architectures,* Washington DC, November 2008 [http://goertzel.org/xiaman.pdf]

4. Goertzel, Ben . A Pragmatic Path Toward Endowing Virtually-Embodied AIs with Human-Level Linguistic Capability, *Special Session on Human-Level Intelligence, IEEE World Congress on Computational Intelligence* (WCCI) Hong Kong, 2008 [http://www.goertzel.org/new_research/WCCI_AGI.pdf]

5. Goertzel, Ben and Pennachin, Cassio . An Inferential Dynamics Approach to Personality and Emotion Driven Behavior Determination for Virtual Animals. *The Reign of Catz and Dogz Symposium, AI and the Simulation of Behavior* (AISB), Edinburgh, 2008 [http://novamente.net/AISB08_Goertzel.pdf]

6. Goertzel, Ben, Cassio Pennachin, Nil Geissweiller, Moshe Looks, Andre Senna, Ari Heljakka, Welter Silva, Carlos Lopes . An Integrative Methodology for Teaching Embodied Non-Linguistic Agents, Applied to Virtual Animals in Second Life, in *Proceedings of the First AGI Conference*, Ed. Wang et al, IOS Press [http://www.agiri.org/IRC_Learning.pdf]

7. Goertzel, Ben and Stephan Vladimir Bugaj. Stages of Ethical Development in Artificial General Intelligence Systems, in *Proceedings of the First AGI Conference*, Ed. Wang et al, IOS Press [http://www.agiri.org/AGIethical.pdf]

8. Ikle', Matthew and Ben Goertzel . Probabilistic Quantifier Logic for General Intelligence: An Indefinite Probabilities Approach, in *Proceedings of the First AGI Conference*, Ed. Wang et al, IOS Press
[http://www.agiri.org/IndefiniteProbabilities.pdf]

9. Hart, David and Ben Goertzel. OpenCog: A Software Framework for Integrative Artificial General Intelligence, in *Proceedings of the First AGI Conference*, Ed. Wang et al, IOS Press
[http://www.agiri.org/OpenCog_AGI-08.pdf]

10. Pennachin, Cassio and Ben Goertzel. How Might Probabilistic Reasoning Emerge from the Brain?, in *Proceedings of the First AGI Conference*, Ed. Wang et al, IOS Press [http://www.agiri.org/Brain.pdf]

2007

1. Goertzel, Ben. Human-level artificial general intelligence and the possibility of a technological singularity. *Artificial Intelligence* 171-18 [http://goertzel.org/AI_Journal_Singularity_Draft.pdf]

2. Goertzel, Ben, Cassio Pennachin, Lucio Coelho, Leonardo Shikida, Murilo Queiroz. Biomind ArrayGenius and GeneGenius: Web Services Offering Microarray and SNP Data Analysis via Novel Machine Learning Methods. In *Proceedings of IAAI 2007*, Vancouver CA, July 2007 [http://biomind.com/docs/IAAI01GoertzelB.pdf]

3. Goertzel, Ted and Benjamin Goertzel, "Sociologische Wirklichkeit und ire Ökonometrische Verzerrung – Sociological Realities and Econometri Distortions." Pages 417-452 in Wolfgang Koschnick, editor. Focus-Jahrbuch 2007 – *Schwerpunkt: Neuroökonomie, Neuromarketing und Neuromarktforschung. Mit weiteren Beiträgen über Messen und Befragen, Treiberanalysen, okonometrisches Modeling under Verkehrsmittelwerbung.* Munich, Germany: Focus Magazin Verlag GmbH, 2007.
[http://crs.sagepub.com/content/34/2/239.full.pdf+html]

4. Looks, Moshe, Ben Goertzel, Lucio de Souza Coelho, Mauricio Mudado, and Cassio Pennachin, "Clustering Gene Expression Data via Mining Ensembles of Classification Rules Evolved Using MOSES", *Genetic and Evolutionary Computation COnference (GECCO),* 2007.
[http://www.metacog.org/papers/gecco07d.pdf]

5. Looks, Moshe, Ben Goertzel, Lucio de Souza Coelho, Mauricio Mudado, and Cassio Pennachin, "Understanding Microarray Data through Applying Competent Program Evolution", *Genetic and Evolutionary Computation COnference (GECCO)*, 2007 [http://www.metacog.org/papers/gecco07e.pdf]

6. Ikle', Matt and Ben Goertzel. Indefinite Probabilities for General Intelligence, in *Advances in Artificial General Intelligence*, IOS Press.

7. Goertzel, Ben. Virtual Easter Egg Hunting: A Thought-Experiment in Embodied Social Learning, Cognitive Process Integration, and the Dynamic Emergence of the Self, in *Advances in Artificial General Intelligence*, IOS Press.

8. Heljakka, Ari, Ben Goertzel, Welter Silva, Izabela Goertzel and Cassio Pennachin. Reinforcement Learning of Simple Behaviors in a Simulation World Using Probabilistic Logic, in *Advances in Artificial General Intelligence*, IOS Press.

9. Goertzel, Ben and Stephan Bugaj (2006). Stages of Cognitive Development in Uncertain-Logic-

Based AI Systems.iin *Advances in Artificial General Intelligence*, IOS Press. [http://goertzel.org/agiri06/%5b12%5d%20StephanPaper.pdf]

10. Goertzel, Ben, Cassio Pennachin, Lucio Coelho and Mauricio Mudado. Application of MUTIC to the Exploration of Gene Expression Data on Prostate Cancer. *Genet. Mol. Res. 6* (4): 890-900 (2007)

11. Goertzel, Ben, Ari Heljakka, CassProbabilistic Logic Based Reinforcement Learning of Simple Embodied Behaviors in a 3D Simulation World, Welter Silva, Cassio Pennachin, Andre Senna, Izabela Goertzel, Teemu Keinonen, Matthew Ikle', Sanjay Padmane, *Proceedings of International Symposium on Intelligence Computation and Applications* (ISICA) 2007 [http://goertzel.org/agiri06/%5B15%5D%20ari_agiri_paper_draft2.pdf]

12. Goertzel, Ben, and Matthew Ikle'. Assessing the Weight of Evidence Implicit in an Indefinite Probability. *Proceedings of International Symposium on Intelligence Computation and Applications (ISICA) 2007*

2006

1. Goertzel, Ben, Cassio Pennachin, Lucio Coelho, Brian Gurbaxani, Elizabeth B. Maloney, James F. Jones (2006). *Combinations of single nucleotide polymorphisms in neuroendocrine effector and receptor genes are predictive of chronic fatigue syndrome*, Pharmacogenomics
[http://www.wicfs-me.org/Pdf%20Files/Goertzel.pdf]

2. Pennachin, Cassio, Ben Goertzel Lucio Coelho, Izabela Freire Goertzel, Murilo Queiroz, Francisco Prosdocimi, Francisco Lobo (2006). *Learning Comprehensible Classification Rules from Gene Expression Data Using Genetic Programming and Biological Ontologie*s, Proceedings of CIBB 2006, Genova, Italy

3. Maloney, Elizabeth M. Maloney, Brian M. Gurbaxani, James F. Jones, Lucio de Souza Coelho, Cassio Pennachin, Benjamin N. Goertzel (2006). *Chronic Fatigue Syndrome is Associated with High Allostatic Load*, Pharmacogenomics

4. Goertzel, Ben, Cassio Pennachin, Lucio de Souza Coelho, Elizabeth B. Maloney, James F. Jones, Brian Gurbaxani (2006). *Allostatic Load is Associated with Symptoms in CFS Patients*, Pharmacogenomics
[http://www.salutemed.it/cfs/485.pdf]

5. Gurbaxani, Brian, James F. Jones, Benjamin N. Goertzel, Elizabeth M. Maloney (2006). *Linear Data Mining the Wichita Clinical Matrix Suggests Sleep and Allostatic Load Involvement in Chronic Fatigue Syndrome*, Pharmacogenomics
[http://www.salutemed.it/cfs/455.pdf]

6. Looks, Moshe and Ben Goertzel (2006). *Mixing Cognitive Science Concepts with Computer Science Algorithms and Data Structures: An Integrative Approach to Strong AI*, AAAI Spring Symposium, Cognitive Science Principles Meet AI-Hard Problem*s*, San Francisco 2006 [http://singinst.org/upload/mixing.pdf] [http://www.slideshare.net/artintelligence/mixing-cognitive-science-concepts-with-computer-science]

7. Goertzel, Ben, Moshe Looks, Ari Heljakka, and Cassio Pennachin (2006). *Toward a Pragmatic Understanding of the Cognitive Underpinnings of Symbo*

Grounding, in Semiotics and Intelligent Systems Development, Edited by Ricardo Gudwin and João Queiroz, Eds., 2006
[http://www.irma-international.org/viewtitle/28938/]

8 . Duong, Deborah, Ben Goertzel and Jim Venuto (2006). *Support Vector Machines to Weight Voters in a Voting System of Entity Extractors*. Proceedings of International Joint Conference on Neural Networks, IJCNN 200*6*, Vancouver CA
[http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=1716242]

9. Goertzel, Ben and Jim Venuto (2006). *Accurate SVM Text Classification for Highly Skewed Data Using Threshold Tuning and Query-Expansion-Based Feature Selectio*n. Proceedings of International Joint Conference on Neural Networks, IJCNN 2006, Vancouver CA [http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=1716241]

10. Goertzel, Ben (2006). *Patterns, Hypergraphs and General Intelligence*. Proceedings of International Joint Conference on Neural Networks, IJCNN 2006, Vancouver CA
[http://novamente.net/file/WCCI06_Patterns.pdf]

11. Goertzel, Ben, Lucio Coelho, Cassio Pennachin and Mauricio Mudada (2006). *Identifying Complex Biological Interactions based on Categorical Gene Expression Data*. Proceedings of Conference on Evolutionary Computing 2006, Vancouver CA

12. Goertzel, Ben, Hugo Pinto, Ari Heljakka, Michael Ross, Izabela Goertzel, Cassio Pennachin. *Using Dependency Parsing and Probabilistic Inference to Extract Gene/Protein Interactions Implicit in the Combination of Multiple Biomedical Research Abstracts,* Proceedings of BioNLP-2006 Workshop at ACL-2006, New York
[http://delivery.acm.org/10.1145/1570000/1567641/p104-goertzel.pdf?ip=79.167.184.167&acc=OPEN&CFID=67140720&CFTOKEN=71251006&__acm__=1320500433_2ff10c4b1e673302070050ad8cbfacc2]
[http://wendang.baidu.com/view/ee26787e27284b73f2425017.html]

13. Queiroz, Murilo, Francisco Prosdocimi, Izabela Freire Goertzel, Francisco Pereira Lobo, Cassio Pennachin, Ben Goertzel. *Inferring Gene Ontology Category Membership via Gene Expression and Sequence Similarity Data Analysis* . Proceedings of KR-Med 2006: Biological Ontologies in Action
[http://www.ceur-ws.org/Vol- 222/krmed2006 -a12.pdf]

14. Goertzel, Ben, Cassio Pennachin, Lúcio de Souza Coelho and Maurício de Alvarenga Mudado (2006). *Identifying Complex Biological Interactions based on Classification of Gene Expression Data.* 14th ISMB – 2006 (http://ismb2006.cbi.cnptia.embrapa.br/), August 10th 2006, in a simultaneous co-event - the 2nd AB3C X-Meeting (Associação Brasileira de Bioinformática e Biologia Computacional - Brazilian Bioinformatics and Computational Biology Association).

15. Goertzel, Ted and Ben Goertzel (2006). *Capital Punishment and Homicide Rates: Sociological Realities and Econometric Distortions*, Critical Sociology [http://crs.sagepub.com/content/34/2/239.full.pdf+html]

16. Goertzel, Ted and Ben Goertzel, *Popper, Lakatos and the Death Penalty* (2006), in Esperando a Godo*t* (Buenos Aires)

17. Goertzel, Ben, Ari Heljakka, Stephan Vladimir Bugaj,Cassio Pennachin, Moshe Looks, Exploring Android Developmental Psychology in a Simulation World, Symposium "Toward Social Mechanisms of Android Science", Proceedings of ICCS/CogSci 2006, Vancouver [http://www.metacog.org/papers/android06.pdf]

2005

1. Smigrodzki, Rafal, Ben Goertzel, Cassio Pennachin, Lucio Coelho, Francisco Prosdocimi, W. Davis Parker Jr. (2005). *Genetic algorithm for analysis of mutations in Parkinson's disease.* Artificial Intelligence in Medicine 35 (3):227-41. [http://ufrj.academia.edu/FranciscoProsdocimi/Papers/545156/Genetic_algorithm_for_analysis_of _mutations_in_Parkinsons_disease]

2. Looks, Moshe, Ben Goertzel, and Cassio Pennachin, *Learning Computer Programs with the Bayesian Optimization Algorithm*, Genetic and Evolutionary Computation Conference (GECCO), [http://metacog.org/moshe-ms.pdf] [https://dl.acm.org/purchase.cfm?id=1068134&CFID=52386137&CFTOKEN=60271505]

3. Goertzel, Ben (2005). *Levels of mind versus levels of being*, Cortex Vol. 41, No. 5, pp. 727-731)

4. Goertzel, Ben (2005). *Quantum Cognition: Foreseeing the Emergence of a Fundamentally Novel Form of Intelligence from Quantum Computing Technology*. In Mind Factory, edited by Louis Armand, Litteraria Pragensia

2004

1. Goertzel, Ben, Moshe Looks and Cassio Pennachin (2004). *Novamente: An Integrative Architecture for Artificial General Intelligence*. Proceedings of AAAI Symposium on Achieving Human-Level Intelligence through Integrated Systems and Research, Washington DC, August 2004
[http://novamente.net/AAAI04.pdf]

2003

1. Goertzel, Ben, Cassio Pennachin, Andre Senna, Thiago Maia and Guilherme Lamacie (2003). Novamente: An Integrative Architecture for Artificial General Intelligence. *Proceedings of IJCAI-03 Workshop on Agents and Cognitive Modeling*, Acapulco, August 2003 [http://www.intelligenesiscorp.com/novamentenet/ijcai03.pdf]

2. Goertzel, Ben (2003). *Chance and Consciousness*. In Mind in Time, Ed. by Combs et al. NY: Hampden Press
[http://www.goertzel.org/dynapsyc/1995/GOERTZEL.html]

3. Goertzel, Ben (2003). *On the Algebraic Structure of Consciousness*. In Mind in Time, Ed. by Combs et al. NY: Hampden Press [http://www.goertzel.org/dynapsyc/1996/consalg.html]

4. Goertzel, Ben (2003). *Does Time Move Forward?* In Mind in Time, Ed. by Combs et al. NY: Hampden Press
[http://www.goertzel.org/dynapsyc/1995/EGOANDTI.html]

2001
1. Goertzel, Ben (2001). *Neural Networks: The Promise and the Reality*, Future (German language magazine)

2000

1. Pressing, J., Goertzel, B., Wood, T. & Pazer, L. (2000). *Enhanced market prediction using textual analysis: Limitations in the efficient market hypothesis.* Proceedings of the International Conference on Advanced Investment Technology 1999, Bond University.

2. Ben Goertzel, Ken Silverman, Cate Hartley, Stephan Bugaj, Mike Ross (2000). *The Baby Webmind Project* , Proceedings of AISB 2000, the annual conference of The Society for the Study of Artificial Intelligence and the Simulation of Behaviour [*http://www.cs.bham.ac.uk/research/cogaff/dam00/papers/goertzel.ps*]

3. Goertzel, Ben and Stephan Bugaj (2000). *WebWorld. A conceptual and software framework for Internet Alife*. Proceedings of VII International conference on Artificial Life, Portland OR [http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.33.6993]

4. Goertzel, Ben, Yuri V. Macklakov, Vladimir C. Redko (2000). *A Model of the Evolution of Web Agents*. Herald of the Russian Academy of Sciences

1998

1. Goertzel, Ben (1998). *Symbolic Dynamics in Complex Psychological Systems,* in Models of Action, Edited by Wynne and Stadden, Lawrence Erlbaum Associates, Mahwah: N.J.

2. Goertzel, Ben (1998). Meaning is a Fuzzy Web of Patterns. In *Proceedings of the 1998 Joint Conferences: Intelligent Control, International Symposium on Computational Intelligence in Robotics and Automation, Intelligent Systems and Semiotics (ISIC/CIRA/ISAS 98)* [http://www.ccs3.lanl.gov/~joslyn/ISAS98/ben.html]

1997

1. Goertzel, Ben (1997). *The Complex Mind/Brain -- II. A Theory of Cortical Dynamics*, Complexity

2. Goertzel, Ben, Harold Bowman and Malwane Ananda (1996). *Second-Order Evolution*. Journal of Biological Systems

3. Goertzel, Ben (1997). *Chaos and Pattern in Complex Systems*. In Chaos in Society*,* Edited by Albert et al, IOS Press

4. Goertzel, Ben (1997). *The Complex Mind/Brain -- I. The Psynet Model of Mental Structure and Dynamics,* Complexity [http://onlinelibrary.wiley.com/doi/10.1002/(SICI)1099-0526(199803/04)3:4%3C51::AID-CPLX10%3E3.0.CO;2-O/abstract]

5. Goertzel, Ben (1997). *Dream Dynamics: A Process Perspective*. In Noetic Journal, Special issue on Mind as a Complex System

6. Goertzel, Ben (1997). *Faces of Complexity in Psychology*. In Noetic Journal, Special issue on Mind as a Complex System

[http://goertzel.org/papers/intro.html]

7.   Goertzel, Ben and Mike Kalish (1997). *Mindspace Curvature*. In Noetic Journal, Special issue on Mind as a Complex System

8.   Goertzel, B. (1997). *Subself dynamics in human and machine intelligence*, CC-AI (Communication and Cognition – Artificial Intelligence)

1996

1.   Goertzel, Ben and Harold Bowman (1996). *Walks on Random Digraphs*, Applied Mathematics Letters, 9-1, pp. 43-47 [http://www.sciencedirect.com/science/article/pii/089396599500100X]

2.   Goertzel, Ben (1996). *Mobile Activation Bubbles in Kohonen Networks*, Applied Mathematics Letters.

      [http://www.sciencedirect.com/science/article/pii/0893965996000778]

3.   Goertzel, Ben (1996). *Artificial Selfhood -- the Path to True Artificial Intelligence,* Informatica [http://www.goertzel.org/papers/aipap.html]

4.   Goertzel, Ben (1996). *Belief Systems as Attractors*, in A Chaos Psychology Reader, Ed. by Combs and Robertson. Hilldale NJ: Erlbaum

5.   Goertzel, Ben (1996). *A Cognitive Equation*, in A Chaos Psychology Reader, Ed. by Combs and Robertson. Hilldale NJ: Erlbaum

6.   Goertzel, Ben (1996). *Musical Psychology and the Aesthetics of Computer Music*. Journal of ElectroAcoustic Music.

1995

1.   Goertzel, Ben (1995). *Rapid Generation of Chaotic Attractors with the Eugenic Genetic Algorithm*, Computers and Graphics 19-1, p. 151 [http://www.sciencedirect.com/science/article/pii/009784939400130Q]

2.   Goertzel, Ben (1995). *The Convergence Rate of the Simple GA as Population Size Tends to Infinity*, Proceedings of ICEC 1995

3.   Goertzel, Ben and Harold Bowman (1995). *Self-Reference, Computation and Mind*, J. Soc. and Ev. Sys, 18-1, p. 95

4.   Goertzel, Ben (1995). *Evolutionary and Chaotic Dynamics in Minds and Immune Systems,* in Chaos and Psychology, Edited by Fred Abraham and Roger Gilgen, New York: Greenwood Press

5.   *Goertzel, Ted and Ben Goertzel (1995).* The Dynamics of Belief in the Anita Hill/ Clarence Thomas Trial*, in Chaos and Society, Ed. by Pierre Lemiux*

6.   Goertzel, Ben and Gwen Goertzel (1995). *The Markovian Language Algorithm: Toward a Neural Network Architecture for Grammar Induction*, Proceedings of ANZIIS 1995

7.   Goertzel, Ben and Gwen Goertzel (1995) *Language as a Biological System*. ASSA Journal of System Science 3

1994

1. Goertzel, Ben (1994). *Lagrange Interpolation on a Processor Tree with Ring Connections*, J. of Parallel and Distributed Computation 22-2, p.321 [http://dl.acm.org/citation.cfm?id=181082&dl=GUIDE&coll=GUIDE]

2. Goertzel, Ben (1994). *Simulated Annealing on Uncorrelated Fitness Landscapes*, Int. J. Math. and Math. Sci. 17-4, p. 791

3. Karabekian, Moses and Ben Goertzel (1995). *Discriminant Analysis of Hydrocollapse in Las Vegas Soils,* Civil Engineering Systems [http://www.tandfonline.com/doi/abs/10.1080/02630259508970152?journalCode=gcee19]

4. Goertzel, Ben, Hiroo Miyamoto and Yoshimasa Awata (1994). *Fractal Image Compression with the Genetic Algorithm,* Complexity International [http://www.complexity.org.au/ci/vol01/goertz01/html/]

5. Goertzel, Ben (1994). *Evolving Fractal Industrial Music,* Proceedings of SYNAESTHETICA94 Conference on Computer Animation and Computer Music, Canberra: Australian Centre for Arts and Technology

6. Goertzel, Ben (1994). *The Software Market as a Self- Organizing System*, J. Soc. and Ev. Sys. 17-1, p.9

1993

1. Goertzel, Ben (1993). *Brain Function as Evolution*, J. Soc. and Ev. Sys. 15-4, p. 399

2. Goertzel, Ben (1993). *Some Thoughts on Akin's Spiteful Computer*, Minds and Machines 4-1, p. 75

   [http://www.springerlink.com/content/j7776rp13k57m82p/]

3. Goertzel, Ben (1993). *Psychology and Logic*, J. Soc. and Ev. Sys. 16-4, p. 439

4. Goertzel, Ben (1993). *Phase Transitions in Associative Memory Networks,* Minds and Machines 3-3, p. 313 [https://springerlink3.metapress.com/content/r98wl65216802k7v/resource-secured/?target=fulltext.pdf&sid=rxl15gop5lg2x5gglto040vf&sh=www.springerlink.com]

5. Goertzel, Ben (1993). *Self-Reference and Complexity: Component-Systems and Self-Generating Systems in Biology and Cognitive Science*, Evolution and Cognition 2, p. 257

6. Goertzel, Ben, Harold Bowman and Richard Baker (1993). *Dynamics of the Radix Expansion Map*, J. Math. and Math. Sci. 17-1, p. 143 [http://www.emis.de/journals/HOA/IJMMS/Volume17_1/278969.pdf]

1992

1. Goertzel, Ben (1992) *Self-organizing Evolution,* J. Social and Evolutionary Systems 15-1, p. 7

2. Goertzel, Ben (1992). *What is Hierarchical Selection?* , Biology and Philosophy 7-1, p. 27 [https://springerlink3.metapress.com/content/r3430l4h08048526/resource-secured/?target=fulltext.pdf&sid=rxl15gop5lg2x5gglto040vf&sh=www.springerlink.com]

3. Goertzel, Ben (1992). *Measuring Static Complexity,* Int. J. Math. and Math. Sci. 15-1, p.161 [http://www.deepdyve.com/lp/hindawi-publishing-corporation/measuring-static-complexity-dqdd0RDxpi]

4. Goertzel, Ben (1992) *Quantum Theory and Consciousness*, J. of Mind and Behavior 13-1, p. 29

5. Goertzel, Ben (1992). *Structural Complexity of Sequences, Images and Automata,* in Finite Fields, Coding, and Advances in Communication and Computing, ed. Shiue and Mullen, Marcel Dekker, p. 307

6. Goertzel, Ben (1992). *Global Optimization by Multilevel Search*, J. of Optimization Theory and Applications 77-2, p. 423 [http://www.springerlink.com/content/q3n43075315mk51h/]

1991

1. Goertzel, Ben (1991). *Expression and Simulation in the Rock Guitar Solo,* Popular Music and Society [http://www.tandfonline.com/doi/abs/10.1080/03007769108591426]

JOURNALISTIC ARTICLES

During the period 1999-2002 I published roughly two dozen articles in the newspaper Frankfurter Allgemaine Zeitung. Most dealt with topics or individuals in computer science or science in general, or with "visionary futuristic" themes. English-language versions of most of the articles can be found at http://www.goertzel.org/benzine/

More recently, since 2006 I have published dozens of articles in various online futurist magazines including H+ Magazine, Kurzweilai.net and others, and also in various tech magazines focused on AI and blockchain.