

Now: A Spectral Approach to Ghost Detection

Next: On n-Dimensional Polytope Schemes and
a special message from our sponsors

A Spectral Approach to Ghost Detection

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Motivation – Naturally Inspired Algorithms

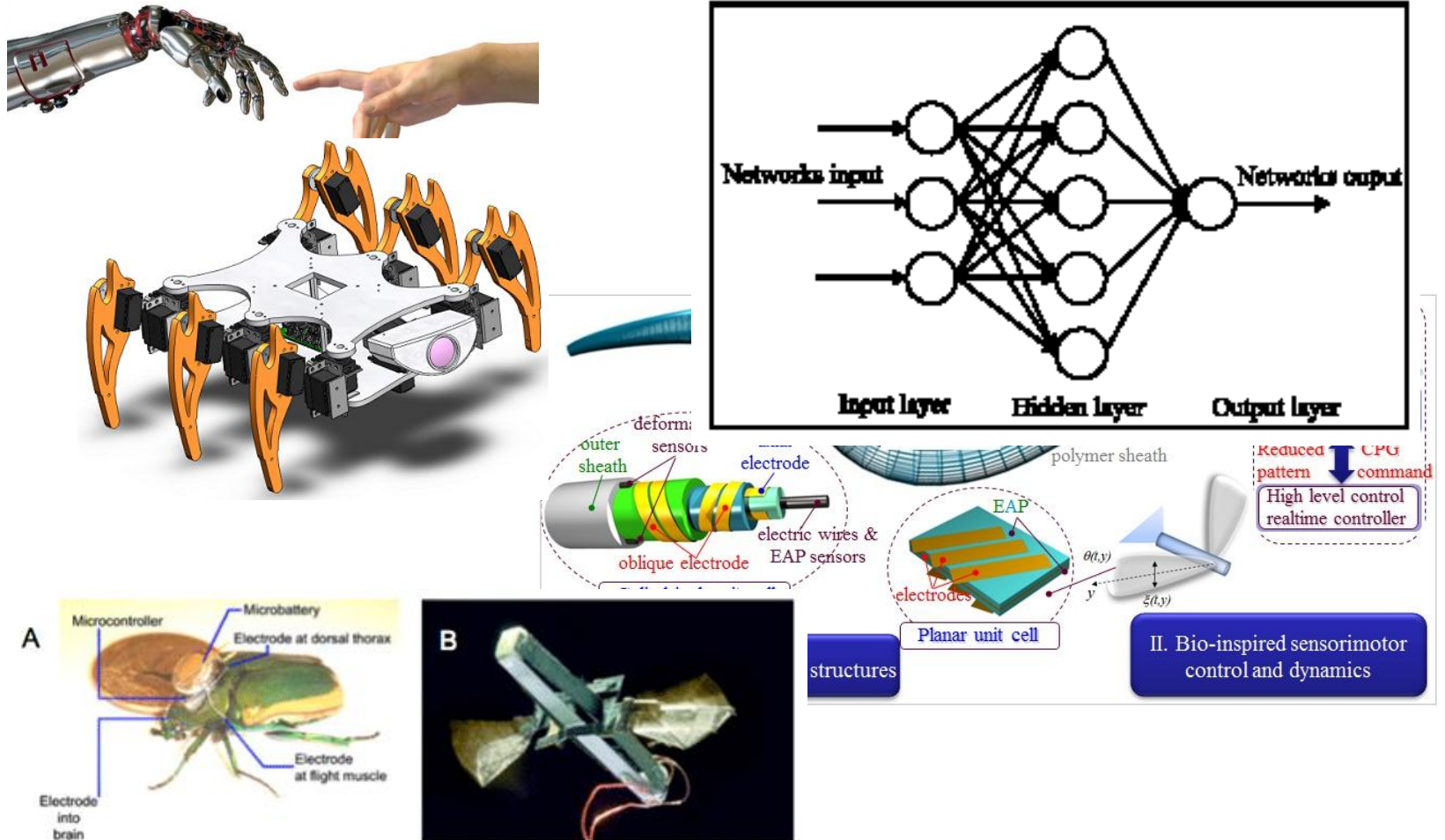


Fig. 4. A. A flight microcontroller attached to a beetle [21]. **B.** A bio-inspired flying robot, the Micromechanical Flying Insect (MFI) [14].

Motivation – Naturally Inspired Algorithms

- Falling down a slope [1951]
- Climbing up a Hill [1970]
- Iron Cooling Down [1970]
- DNA Mutation [1989]
- Meme Spreading [1989]
- Ant colony exploration [1992]
- Honeybee mating [2006]
- Bee colonies [2005]
- Glowworm communication [2009]
- Firefly communication [208]
- Musicians playing [2001]
- Mosquito swarms [1995]
- Honeybee swarms [2006]
- Krill swarms [2009]
- Cat swarms [200]
- Magnetism [2008]
- Intelligent waterdrops [2009]
- River formation [2008]
- Frog leaping [2008]
- Monkey search [2007]

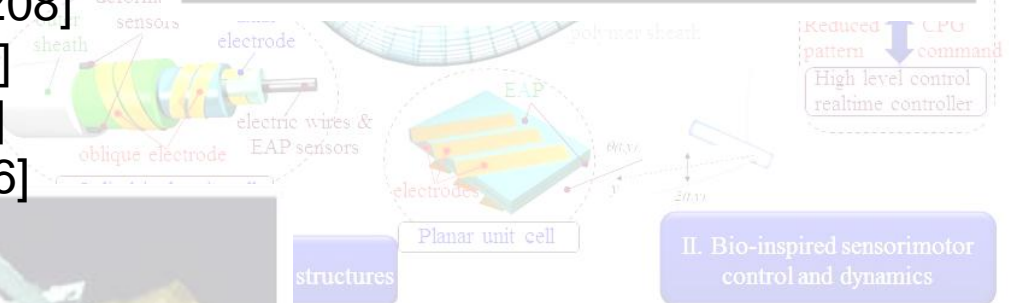
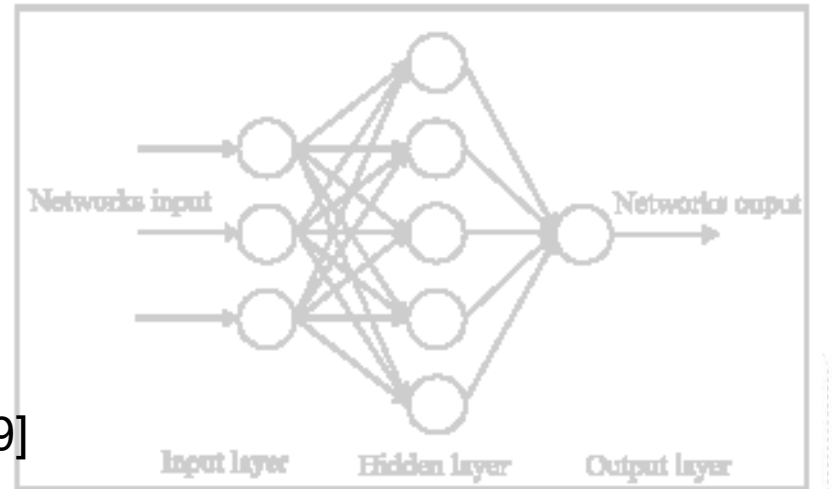


Fig. 4. A. A light microcontroller is attached to a beetle [21]. B. A bio-inspired flying robot (MFI) [14].

Zoo algorithm?

You got scooped!
(In submission)

But what about the supernatural?



Related Work

- Oracles (how do they know?)
- Necromancy (kinda icky)
- Multilevel Bayesian Modeling (really icky)



Equations

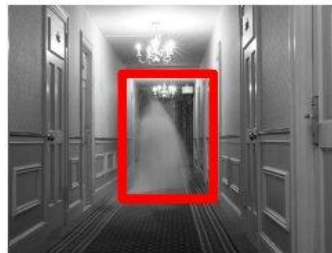
$$\text{achiev}_{ijk} \sim N(\mathbf{XB}, \Omega)$$
$$\begin{aligned} \text{achiev}_{ijk} = & \beta_{0ij} \text{const} + \beta_{31} \text{pupsex}_{ijk} + \beta_{32} \text{pupses}_{ijk} + \beta_{33} \text{pdenom}_{jk} + \beta_{34} \text{sdenom}_{ijk} \\ & + v_{1k} c_{101}_{ijk} + v_{2k} c_{102}_{ijk} + v_{3k} c_{103}_{ijk} + v_{4k} c_{104}_{ijk} + v_{5k} c_{105}_{ijk} \\ & + v_{6k} c_{106}_{ijk} + v_{7k} c_{107}_{ijk} + v_{8k} c_{108}_{ijk} + v_{9k} c_{109}_{ijk} + v_{10k} c_{110}_{ijk} \\ & + v_{11k} c_{111}_{ijk} + v_{12k} c_{112}_{ijk} + v_{13k} c_{113}_{ijk} + v_{14k} c_{114}_{ijk} + v_{15k} c_{115}_{ijk} \\ & + v_{16k} c_{116}_{ijk} + v_{17k} c_{117}_{ijk} + v_{18k} c_{118}_{ijk} + v_{19k} c_{119}_{ijk} + v_{20k} c_{120}_{ijk} \\ & + v_{21k} c_{121}_{ijk} + v_{22k} c_{122}_{ijk} + v_{23k} c_{123}_{ijk} + v_{24k} c_{124}_{ijk} + v_{25k} c_{125}_{ijk} \\ & + v_{26k} c_{126}_{ijk} + v_{27k} c_{127}_{ijk} + v_{28k} c_{128}_{ijk} + v_{29k} c_{129}_{ijk} + v_{30k} c_{130}_{ijk} \end{aligned}$$
$$\beta_{0ij} = \beta_0 + u_{0jk} + e_{0ijk}$$
$$\beta_{32j} = \beta_{32} + u_{32jk}$$

v_{1k}	σ_v^2	σ_v^2	σ_v^2	σ_v^2
v_{2k}	0	σ_v^2		
v_{3k}	0	0	σ_v^2	
v_{4k}	0	0	0	σ_v^2

Fonts Subs Name + - Add Term Estimates Nonlinear Help Clear

Application Domain

- Ghosts ruin family photos
- Detect with support vector machine (SVM) using spectral power features



Ghost Removal

- Developed a photoshop plugin



Before



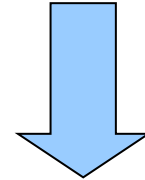
After

Ghost Removal Method

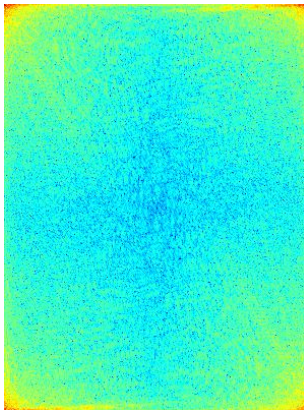
Input



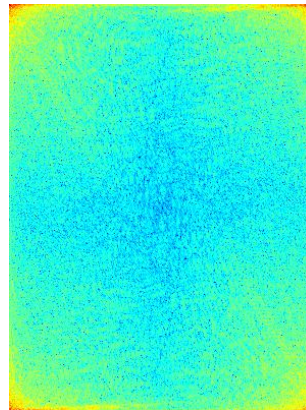
Conclusive
Proof of Ghosts



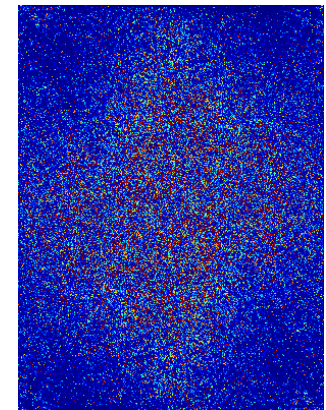
Fourier Transform



-

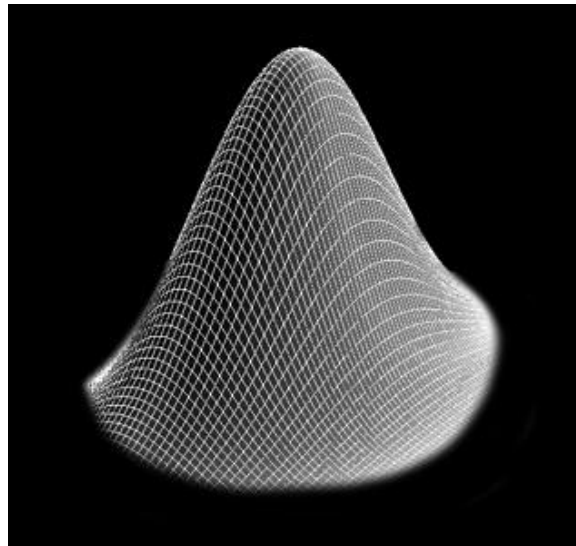


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Toward Paranormal Statistics

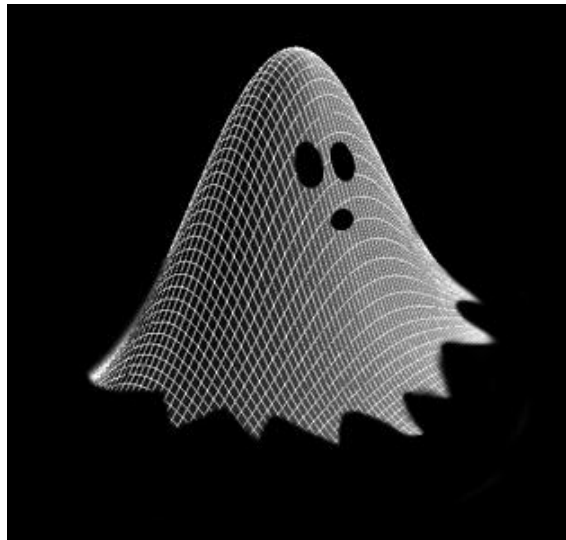
- Standard statistics (e.g., mixture of normal distributions) inadequate for dealing with demons, ghosts, etc.



Toward Paranormal Statistics

- Propose Paranormal distribution

$$X \sim \text{PN}(\mathcal{V}, \mathcal{D}^{\star}, \Delta_{\perp}^{\odot}, \mathcal{R}_{\ominus}, \mathcal{R})$$

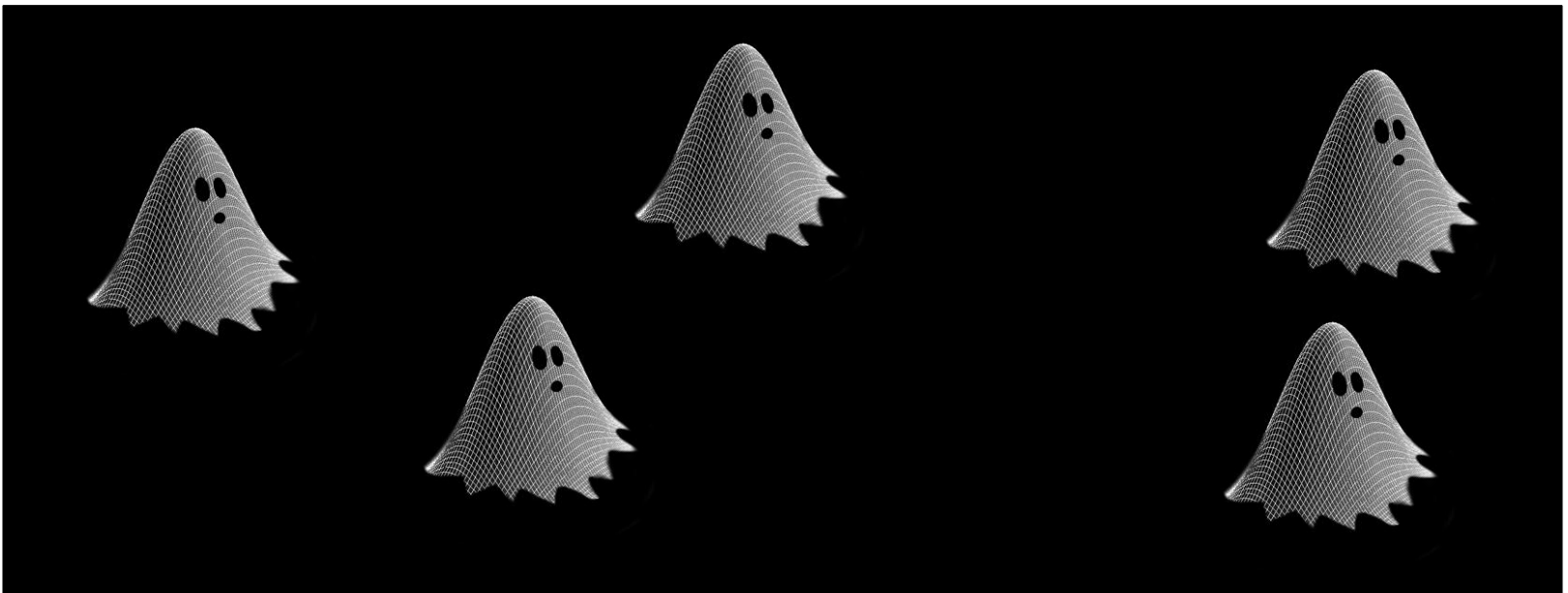


Powerful Generalization

- Mixture of Paranormals using Occult Variables

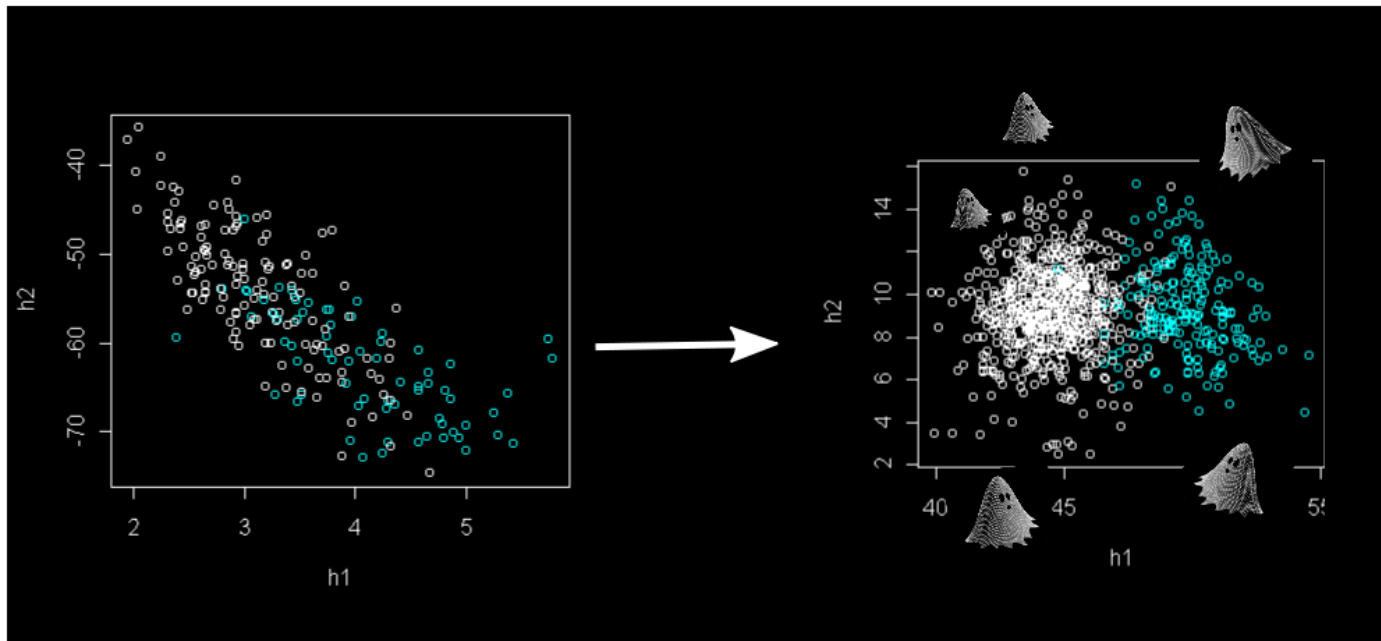
$$Z \sim \text{Mult}(\xi_1, \dots, \xi_K)$$

$$X|Z \sim \text{PN}(\vartheta_k, \varphi_k^{\star}, \Delta_{k\perp}^{\odot}, \leftarrow_{k\ominus}, \mathcal{R}_k)$$



Fitting a parnormal distribution

- Supernatural gradient descent
- Astral projection for dimensionality reduction and unnaturally low condition numbers.

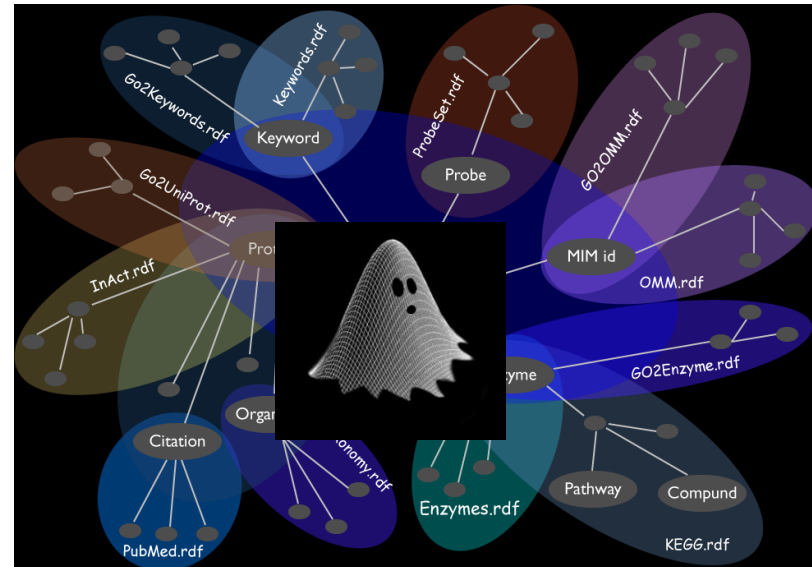
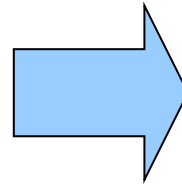
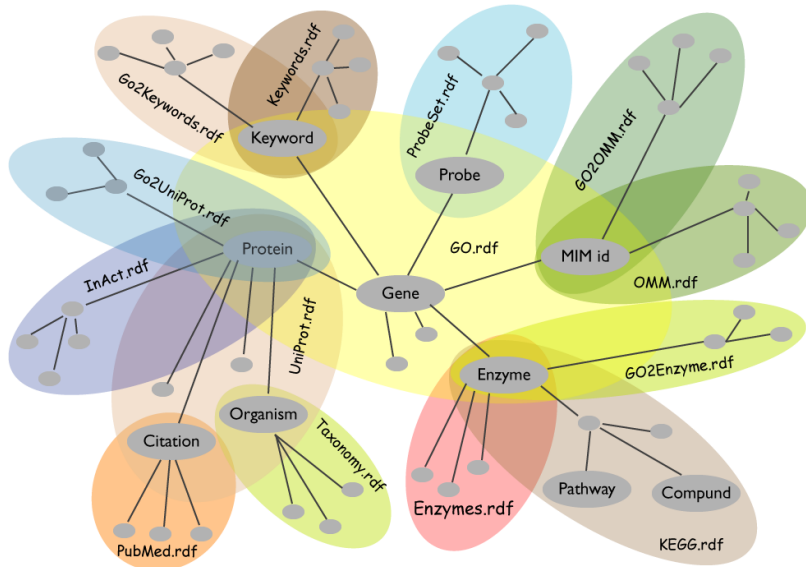


Last Resort?



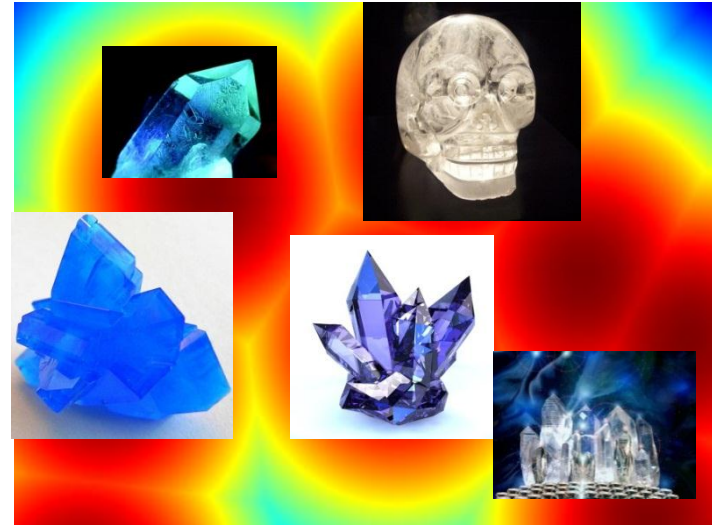
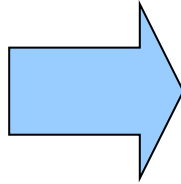
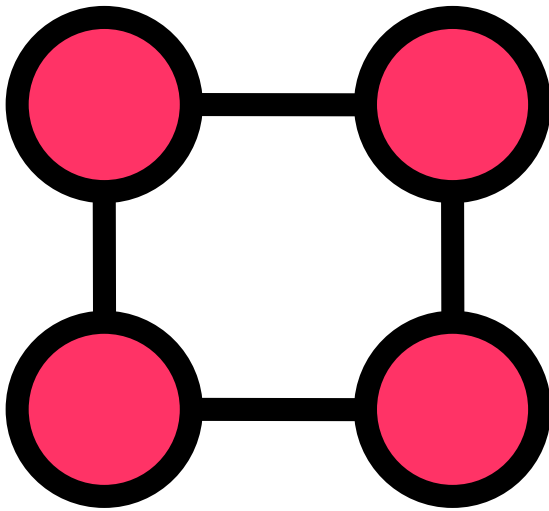
Applications of Paranormal Modeling

Hauntologies



Spookier = Guaranteed Novelty!

Crystal Energy Methods



Overcome local minima and heal the earth with crystal energy!

For K-Optimality, Kabbalah



See highly relevant work on K-optimality and celebrity-affiliated spaces in (Fouhey, Maturana SIGBOVIK '12).

Conclusion

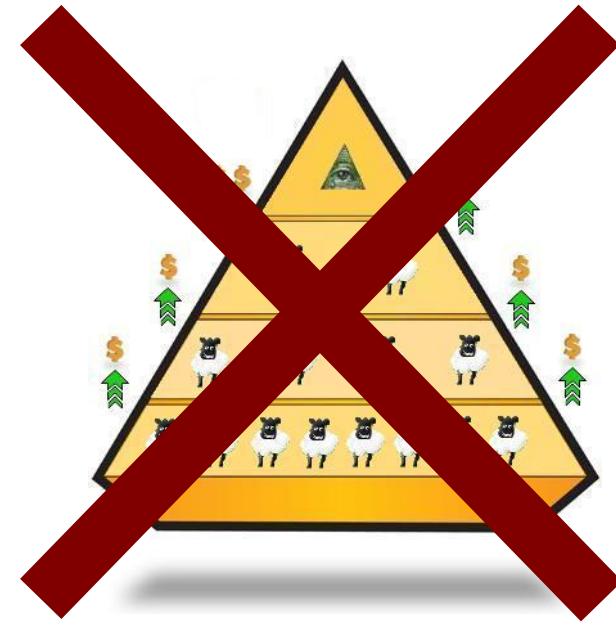
Don't let your work be
constrained by reality!

Before: A Spectral Approach to Ghost Detection

Now: On n-Dimensional Polytope Schemes and
a special message from our sponsors

Before we begin

- This is not a pyramid scheme.
- **This is not a pyramid scheme.**
- *This is not a pyramid scheme.*
- This is not a pyramid scheme.
- **This is not a pyramid scheme.**
- ***This is not a pyramid scheme.***
- *This is not a pyramid scheme.*
- ***This is not a pyramid scheme.***



Review

- Recall Hilbert's celebrated proof via elimination ideals that his creditors are owed no money [Hilbert 1895]
- Leads to Hilbert's 24th problem:
 - *Can one make money at home risk free with algebraic geometry?*
- Largest unsolved problem in algebraic geometry and set theory.



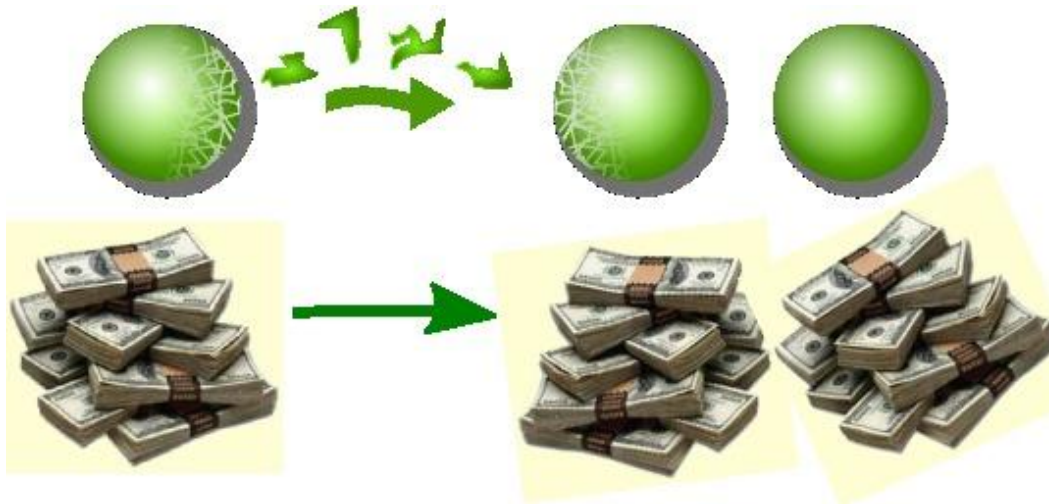
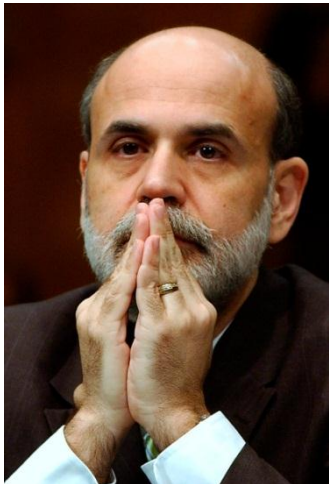
We answer positively

- Yes, you can make money:
 - *At home*
 - *At your own schedule*
 - *With no work*
 - *Risk free*
 - *With algebraic geometry!*



Proof?

- Revolves around a secret analysis of n-Dimensional polytope schemes.
- Inspired on Tarski-Banach paradox and Fiat currency
- Valid for gold & silver standards



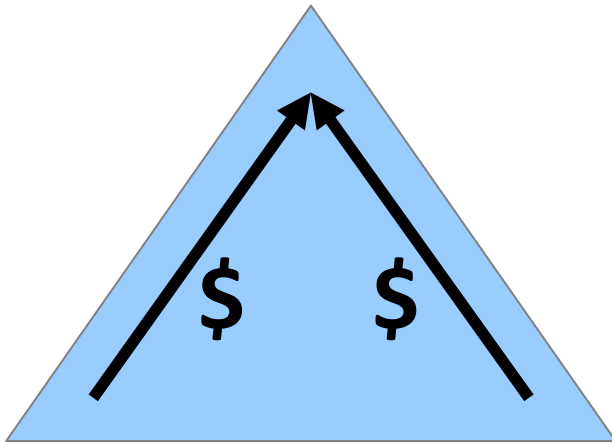
Watertight proof!

- Watertight proof in our paper
- **Guaranteed income via Algebraic Geometry!**

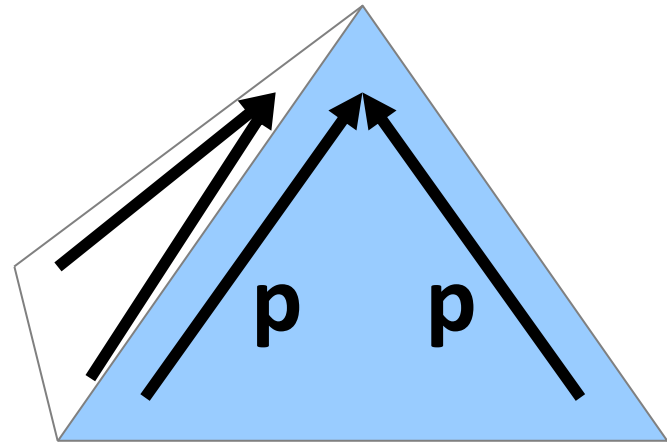


Too good to be true?

- This is not a pyramid scheme.



Pyramid Scheme



Polytope Scheme

How to Join?

YES! I want guaranteed, risk free
INCOME from **Algebraic Geometry!**



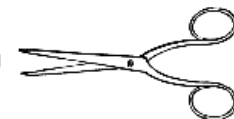
You can choose not to make money. You can also choose to be stupid. To join the SMART investors fund, detach this form immediately and send your first deposit (USD only, cash, check, or money order) to:

SMART Investing
CMU RI – EDSH 212
5000 Forbes Avenue
Pittsburgh, PA 15232



Yes, I want stress-free personal financial freedom via Algebraic Geometry!!! Consider the following investing levels and expected returns when making your first deposit!

- | | |
|---|---|
| <input type="checkbox"/> Investor (\$200 – Return \$1000) | <input type="checkbox"/> Venture Capitalist (\$1,000 – Return \$12,000) |
| <input type="checkbox"/> Sharp Investor (\$400 – Return \$3000) | <input type="checkbox"/> Financier (\$2,500 – Return \$30,000) |
| <input type="checkbox"/> Genius Investor (\$800 – Return \$8,000) | <input type="checkbox"/> Platinum Magnate (\$5,000 – Return \$100,000) |



And now for a sponsored contribution

<http://oneweirdkerneltrick.com/>

Questions?