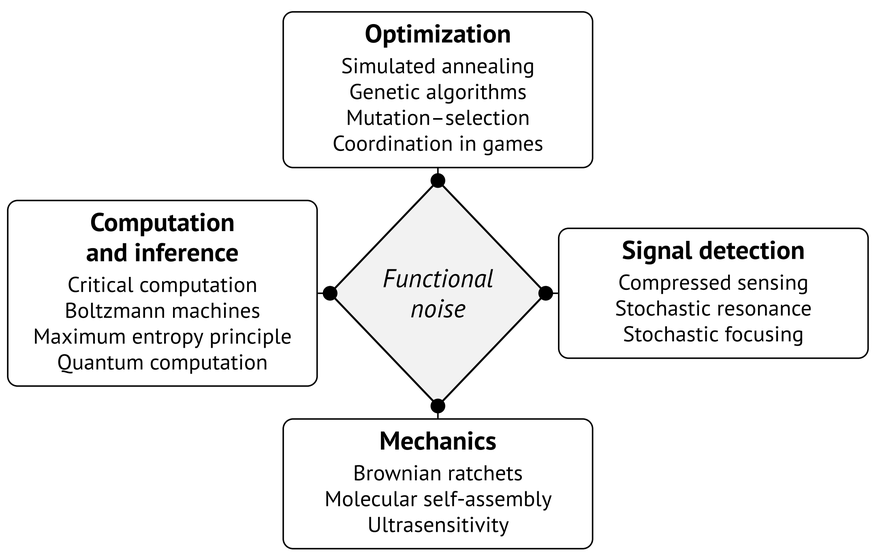
The functional role of noise in artificial life

Noise, like air, is all around.

Georgii Karelin OIST ECSU

Functional noise



Four categories of functional noise in collective systems, with examples of each. Adapted from Figure 1 of Kahneman, D., Krakauer, D. C., Sibony, O., Sunstein, C., & Wolpert, D. (2022). An exchange of letters on the role of noise in collective intelligence. *Collective Intelligence*, *1*(1), licensed under CC BY-NC 4.0.

Yuragi

揺らぎ

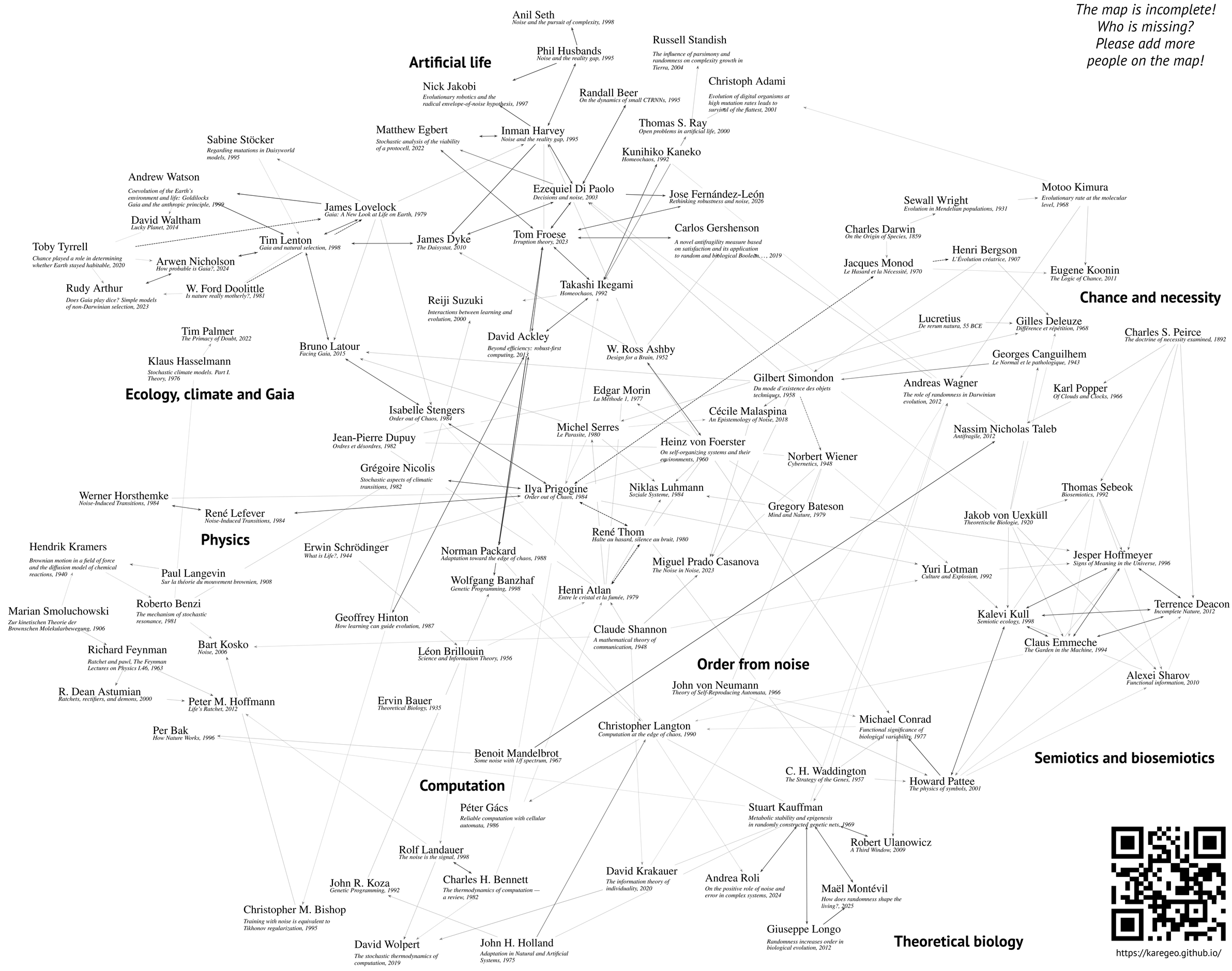
yuragi · fluctuation

For living systems noise is not error, and not even just noise. It is closer to diversity and variability, and it is a driver of novelty and variation. The Japanese word *yuragi* describes this side of noise: fluctuation as something a system uses, rather than a parasite that only harms it.

In French, *parasite* is also a word for "noise", a double meaning the philosopher Michel Serres explored in *The Parasite*.

Noise lineages

The map is incomplete!
Who is missing?
Please add more people on the map!



https://karegeo.github.io/

Ackley, David
Adami, Christoph
Arthur, Rudy
Ashby, W. Ross
Astumian, R. Dean
Atlan, Henri
Bak, Per
Banzhaf, Wolfgang
Bateson, Gregory
Bauer, Ervin
Beer, Randall
Bennett, Charles H.
Benzi, Roberto
Bergson, Henri
Bishop, Christopher M.
Brillouin, Léon
Canguilhem, Georges
Conrad, Michael
Darwin, Charles
Deacon, Terrence
Deleuze, Gilles
Di Paolo, Ezequiel
Doolittle, W. Ford
Dupuy, Jean-Pierre
Dyke, James
Egbert, Matthew
Emmeche, Claus
Fernández-León, Jose
Feynman, Richard
Foerster, Heinz von
Froese, Tom
Gács, Péter
Gershenson, Carlos
Harvey, Inman
Hasselmann, Klaus
Hinton, Geoffrey
Hoffmann, Peter M.
Hoffmeyer, Jesper
Holland, John H.
Horsthemke, Werner
Husbands, Phil
Ikegami, Takashi
Jakobi, Nick
Kaneko, Kunihiko
Kauffman, Stuart
Kimura, Motoo
Koonin, Eugene
Kosko, Bart
Koza, John R.
Krakauer, David
Kramers, Hendrik
Kull, Kalevi
Landauer, Rolf
Langevin, Paul
Langton, Christopher
Latour, Bruno
Lefever, René
Lenton, Tim
Longo, Giuseppe
Lotman, Yuri
Lovelock, James
Lucretius
Luhmann, Niklas
Malaspina, Cécile
Mandelbrot, Benoit
Monod, Jacques
Montévil, Maël
Morin, Edgar
Neumann, John von
Nicholson, Arwen
Nicolis, Grégoire
Packard, Norman
Palmer, Tim
Pattee, Howard
Peirce, Charles S.
Popper, Karl
Prado Casanova, Miguel
Prigogine, Ilya
Ray, Thomas S.
Roli, Andrea
Schrödinger, Erwin
Sebeok, Thomas
Serres, Michel
Seth, Anil
Shannon, Claude
Sharov, Alexei
Simondon, Gilbert
Smoluchowski, Marian
Standish, Russell
Stengers, Isabelle
Stöcker, Sabine
Suzuki, Reiji
Taleb, Nassim Nicholas
Thom, René
Tyrrell, Toby
Uexküll, Jakob von
Ulanowicz, Robert
Waddington, C. H.
Wagner, Andreas
Waltham, David
Watson, Andrew
Wiener, Norbert
Wolpert, David
Wright, Sewall