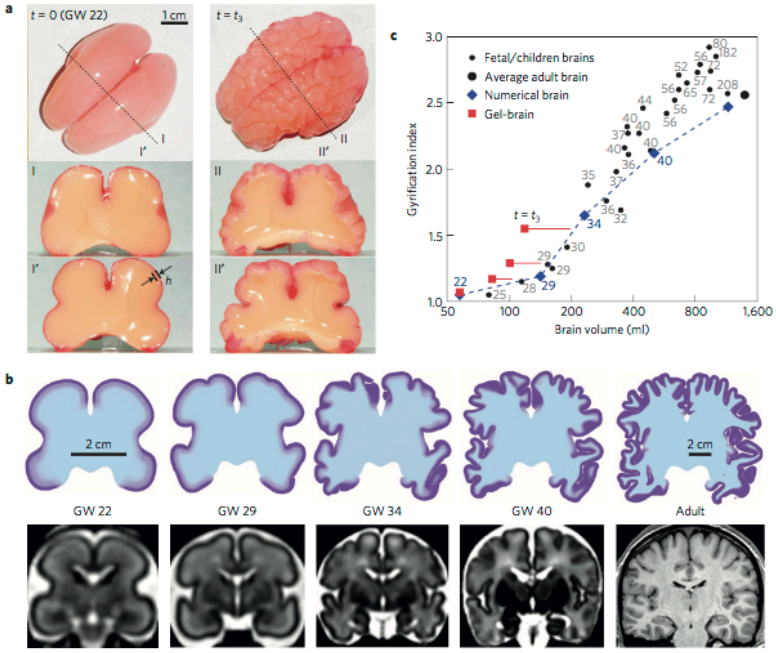

From: Tallinen T., Chung J., Rausseau F., Girard N., Lefevre J., Mahadevan L. **On the growth and form of cortical convolutions** Nat. Phys., 12 (2016), pp. 588-593

Professor Lakshminarayanan Mahadevan

See:
https://en.wikipedia.org/wiki/Lakshminarayanan_Mahadevan
https://www.aiche.org/sbe/community/bio/lakshminarayanan-mahadevan
https://cbmm.mit.edu/about/people/mahadevan
https://scholar.google.com/citations?user=iiyj5MsAAAAJ&hl=en
https://www.researchgate.net/profile/Lakshminarayanan_Mahadevan
https://www.seas.harvard.edu/directory/lm
https://www.physics.harvard.edu/people/facpages/mahadevan
https://www.macfound.org/fellows/56/

John A. Paulson School of Engineering and Applied Sciences
Harvard University, Cambridge, Massachusetts, USA

Biography:
From https://www.aiche.org/sbe/community/bio/lakshminarayanan-mahadevan: Prof. Mahadevan is the Lola England de Valpine Professor of Applied Mathematics, Professor of Organismic and Evolutionary Biology, and Professor of Physics, Harvard university. Before arriving at Harvard in 2003, he was the first Schlumberger Professor of Complex Physical Systems in the Department of Applied Mathematics and Theoretical Physics at Cambridge University, and a Fellow of Trinity College. Among his awards are a 2009 MacArthur "genius" grant, a John Simon Guggenheim Memorial Fellowship, MIT's Harold Edgerton Award, Harvard's George

Ledlie Prize, Fellow of the Royal Society, and named lectures and professorships at the Universities of Oxford, Cambridge, Ecole Normale Superieure, Chicago, Brown, University of California-Berkeley, among others.

From https://www.macfound.org/fellows/56/: L. Mahadevan is a mathematician who applies complex mathematical analyses to a variety of seemingly simple, but vexing, questions across the physical and biological sciences — how cloth folds when draped, how skin wrinkles, how flags flutter, how Venus flytraps snap closed. Through his explorations of shape and motion, in many different material types, sizes, and time frames, Mahadevan strives to identify commonalities of the fundamental nonlinear and nonequilibrium behavior driving them. One line of his research considers the relationship between the biochemistry and mechanics of structural molecules that form polymers, such as actin, within the cell. These investigations have parallels in his work on the hydrodynamics and elasticity of thin films and sheets (e.g., made of fabric). Mahadevan also considers properties of materials at larger scales, such as cell shape, adhesion, and migration in developmental biology, avalanche dynamics, or the role of water in determining the tensile characteristics of plants. Though he searches for and elucidates mathematical principles underpinning these complex behaviors, his focus remains on developing hypotheses that can be confirmed or rejected empirically in the lab. The unusually broad scope of his theoretical and experimental investigations defies facile categorization, but they are linked by an effort to discover the geometric and mechanical principles that determine the behavior of complex biological and physical systems.

Research Interests:
Mahadevan's interests center around understanding shape and flow of matter in space and time. A particular interest is the world as observed by our unaided senses, which is easily amenable to experience and experiments and leads to insights that go well beyond the specific problem at hand. These drive the mathematical descriptions, the physical and biophysical predictions, the engineering design and control, and the neural and cognitive perception of shape and flow. Mahadevan's approach to science and engineering is problem-driven, not tool-limited, and thus uses and creates tools as required, from many areas of continuum, statistical and condensed matter physics, theoretical biology, as well as geometry, statistics and computational science.

Selected Publications:
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