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Titolo	Computational models of cognitive processes : proceedings of the 13th Neural Computation and Psychology Workshop, San Sebastian, Spain, 12-14 July 2012 / / editors, Julien Mayor (University of Geneva, Switzerland), Pablo Gomez (De Paul University, USA)
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Descrizione fisica	1 online resource (287 p.)
Collana	Progress in neural processing ; ; volume 21
Altri autori (Persone)	MayorJulien GomezPablo (Pablo Alegria)
Disciplina	612.8/233
Soggetti	Neural networks (Neurobiology) Cognition Neural stimulation Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface; Contents; Language; Modelling Language - Vision Interactions in the Hub and Spoke Framework; 1. Introduction; 2. Virtues of the Hub & Spoke Framework; 3. A Hub & Spoke Model of Language Mediated Visual Attention; 3.1. Language Mediated Visual Attention & The Visual World Paradigm; 3.2. Method; 3.2.1. Network; 3.2.2. Artificial Corpus; 3.2.3. Training; 3.2.4. Pre-Test; 3.3. Results; 3.3.1. Simulation of Phonological Effects; 3.3.2. Simulation of Visual Effects; 3.3.3. Simulation of Semantic Effects; 4. Discussion; References Modelling Letter Perception: The Effect of Supervision and Top-Down Information on Simulated Reaction Times1. Introduction; 2. Method; 2.1. Simulations; 2.2. Neural Network Algorithms; 2.2.1. Restricted Boltzmann Machines; 2.2.2. Training a Deep-Belief Network; 2.2.3. Delta-Rule and Back-Propagation; 2.2.4. Simulating Reaction Times; 2.3. Human Reaction Time Data; 3. Results; 4. Conclusions; References; Encoding Words into a Potts Attractor Network; 1. Introduction; 2. BLISS: The Training Language; 3. Potts Attractor Network: a Simplified

Model of the Cortex

4. Implementation of Word Representation in the Potts Network4.1. Semantic Representation; 4.2. Syntactic Representation; 5. Discussion; References; Unexpected Predictability in the Hawaiian Passive; 1. Introduction; 2. Data; 3. Methods; 3.1. Pre-processing; 3.2. The model; 3.3. Error measures; 3.3.1. Mean Squared Error; 3.3.2. Classification Error; 3.4. Baseline estimates; 3.4.1. Random guess: adaptation to the range of target values; 3.4.2. Weighted guess: adaptation to the distribution of target values; 4. Results; 5. Conclusion; Acknowledgements; References

Difference Between Spoken and Written Language Based on Zipf 's Law Analysis1. Introduction; 2. Methods; 3. Results; 3.1. Log- log frequency vs. rank plots; 3.2. Five most frequent words in 1-, 2-, and 3-grams; 3.3. Exponent of rank; 4. Discussion; Acknowledgments; References; Reading Aloud is Quicker than Reading Silently: A Study in the Japanese Language Demonstrating the Enhancement of Cognitive Processing by Action; 1. Introduction; 2. Material and Methods; 3. Results; 4. Discussion; References; Development; Testing a Dynamic Neural Field Model of Children's Category Labelling

1. Introduction2. Simulation; 2.1. Dynamic Neural Fields; 2.2. Categorisation by Shared Features; 2.3. Method; 2.3.1. Architecture; 2.3.2. Stimuli; 2.3.3. Design and Procedure; 2.3.4. Results and Discussion; 3. Experiment; 3.1. Method; 3.1.1. Participants; 3.1.2. Stimuli; 3.1.3. Procedure and Design; 3.2. Results and Discussion; 4. General Discussion; References; Theoretical and Computational Limitations in Simulating 3- to4-Month-Old Infants' Categorization Processes; 1. Introduction; 2. Simulation 1. Reproduction of the asymmetric categorization effect; 2.1. Stimuli

2.2. Neural network procedure

Sommario/riassunto

Computational Models of Cognitive Processes collects refereed versions of papers presented at the 13th Neural Computation and Psychology Workshop (NCPW13) that took place July 2012, in San Sebastian (Spain). This workshop series is a well-established and unique forum that brings together researchers from such diverse disciplines as artificial intelligence, cognitive science, computer science, neurobiology, philosophy and psychology to discuss their latest work on models of cognitive processes.

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Autore	Caltagirone Jean-Paul
Titolo	Discrete mechanics / / Jean-Paul Caltagirone
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Descrizione fisica	1 online resource (253 p.)
Collana	Fluid Mechanics Series
Disciplina	531.01515
Soggetti	Mechanics, Analytic Nonlinear mechanics
Lingua di pubblicazione	Inglese
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Nota di contenuto	Cover; Title Page; Copyright; Contents; Preface; List of Symbols; Introduction; I.1. General points; I.2. Introduction; 1: Framework of Discrete Mechanics; 1.1. Frames of reference and uniform motions; 1.2. Concept of a Discrete Medium; 1.2.1. Vectors and components; 1.2.2. Physical meaning of the differential operators; 1.2.3. Use of the theorems of differential geometry; 1.2.4. Two essential properties; 1.2.5. Tensorial values; 1.2.6. The scalar and vectorial potentials; 1.3. The physical characteristics; 1.4. Equilibrium stress state; 1.4.1. Two examples of mechanical equilibrium 1.5. Thermodynamic non-equilibrium1.5.1. Forces and fluxes; 1.6. Conservation of mass; 2: Momentum Conservation; 2.1. Classification of forces; 2.2. Three fundamental experiments; 2.2.1. Equilibrium in a glass of water; 2.2.2. Couette flow; 2.2.3. Poiseuille flow; 2.3. Postulates; 2.4. Modeling of the pressure forces; 2.5. Modeling of the viscous forces; 2.5.1. Modeling of the viscous effects of volume; 2.5.2. Modeling of the viscous surface effects; 2.5.3. Stress state; 2.6. Objectivity; 2.7. Discrete motion balance equation; 2.7.1. Fundamental law of dynamics; 2.7.2. Eulerian step 2.7.3. Mechanical equilibrium2.8. Formulation in terms of density and temperature; 2.9. Similitude parameters; 2.9.1. Impact on the surface

of a liquid; 2.10. Hypercompressible media; 3: Conservation of Heat Flux and Energy; 3.1. Introduction; 3.2. Conservation of flux; 3.3. Conservation of energy; 3.3.1. Conservation of total energy; 3.3.2. Conservation of kinetic energy; 3.3.3. Conservation of the internal energy; 3.4. Discrete equations for the flux and the energy; 3.5. A simple heat-conduction problem; 3.5.1. Case of anisotropic materials; 4: Properties of Discrete Equations
4.1. A system of equations and potentials4.2. Physics represented; 4.2.1. Poiseuille flow and potentials; 4.2.2. Celerity and maximum velocity; 4.2.3. Remarks about turbulence; 4.3. Boundary conditions; 4.3.1. Contact surface; 4.3.2. Shockwaves; 4.3.3. Edge conditions; 4.3.4. Slip condition; 4.3.5. Capillary effects; 4.3.6. Thermal boundary conditions; 4.4. Penalization of the potentials; 4.5. Continua and discrete mediums; 4.5.1. Differences with the Navier-Stokes equation; 4.5.2. Dissipation; 4.5.3. Case of rigidifying motions; 4.5.4. An example of the dissipation of energy
4.6. Hodge-Helmholtz decomposition4.7. Approximations; 4.7.1. Bernoulli's law; 4.7.2. Irrotational flow; 4.7.3. Inviscid fluid; 4.7.4. Incompressible flow; 4.8. Gravitational waves; 4.9. Linear visco-elasticity; 4.9.1. Viscous dissipation in a visco-elastic medium; 4.9.2. Dissipation of longitudinal waves in a visco-elastic medium; 4.9.3. Consistency with Continuum Mechanics; 4.9.4. Pure compression; 4.9.5. Pure shear stress; 4.9.6. Bingham fluid; 5: Multiphysics; 5.1. Extensions to other branches of physics; 5.1.1. Coupling between a fluid and a porous medium
5.2. Flow around a cylinder in an infinite medium

Sommario/riassunto

This book presents the fundamental principles of mechanics to re-establish the equations of Discrete Mechanics. It introduces physics and thermodynamics associated to the physical modeling. The development and the complementarity of sciences lead to review today the old concepts that were the basis for the development of continuum mechanics. The differential geometry is used to review the conservation laws of mechanics. For instance, this formalism requires a different location of vector and scalar quantities in space. The equations of Discrete Mechanics form a system of equations where the H