CPC journal club archive
(alphabetically ordered according to first author’s last name)
last updated: 03/10/2023

- abrahamyan/silva/daking/carandini/gardner - adaptable history biases in human perceptual decisions - pnas - 2016
- adibi/clifford/arabzadehi - informational basis of sensory adaptation: entropy and single-spike efficiency in rat barrel cortex - j neurosci - 2013
- ahrens/sahani - observers exploit stochastic models of sensory change to help judge the passage of time - current biology - 2011
- anderson - probability and the changing shape of response distributions for orientation - j vision - 2014
- anton-erxleben/herrmann/carrasco - independent effects of adaptation and attention on perceived speed - psychological science - 2013
- ashourian/loewenstein - bayesian inference underlies the contraction bias in delayed comparison tasks - plos one - 2011
- ashwood/etal - mice alternate between discrete strategies during perceptual decision-making - nature neuroscience - 2022
- ashwood/jha/pillow - dynamic inverse reinforcement learning for characterizing animal behavior - neurips - 2022
- bahrami/olsen/latham/roepstorff/rees/frith - optimally interacting minds - science - 2010
- baker/meese - zero-dimensional noise: the best mask you never saw - j vision - 2012
- baker/jara-ettinger/saxe/tenenbaum - rational quantitative attribution of beliefs, desires and percepts in human mentalizing - rat hum behavior - 2017
- balle/laparra/simoncelli - end-to-end optimized image compression - arXiv - 2016
- barlow/foldiak - adaptation and decorrelation in the cortex - chapter in: the computing neuron - 1989
- barthelme/mamassian - flexible mechanisms underlie the evaluation of visual confidence - pnas - 2010
- bari/gershman - undermatching is a consequence of policy compression - j neurosci - 2023
- bayanov/smith - bayesian and “anti-bayesian” biases in sensory integration for action and perception in the size-weight illusion - j neurophys - 2010
- bays - noise in neural populations accounts for errors in working memory - j neurosci - 2014
- bays/husain - active inhibition and memory promote exploration and search of natural scenes - j vision - 2012
• benson/winawer - bayesian analysis of retinotopic maps - elife - 2018
• benucci/saleem/carandini - adaptation maintains population homeostasis in primary visual cortex - nat neurosci - 2013
• bem - feeling the future: experimental evidence for anomalous retroactive influences on cognition and affect - journal of personality and social psychology - in press
• beppu/griffiths - iterated learning and the cultural ratchet - proceedings of the 31st annual conference of the cognitive science society - 2009
• berkes/or ban/lengyel/fiser - spontaneous cortical activity reveals hallmarks of an optimal internal model of the environment - science - 2011
• bernardi/benna/rigotti/munuera/fusi/salzman - the geometry of abstraction in the hippocampus and prefrontal cortex - cell - 2020
• bill/pailian/gershman/drugowitsch - hierarchical structure is employed by humans during visual motion perception - pnas - 2020
• bill/gershman/drugowitsch - visual motion perception as online hierarchical inference - nature communications - 2022
• blauch/behrmann/plaut - A connectivity-constrained computational account of topographic organization in primate high-level visual cortex - pnas - 2022
• bondy/haefner/cumming - feedback determines the structure of correlated variability in primary visual cortex - nat neuro - 2018
• bonnen/czuba/whritner/kohn/huk/cormack - binocular viewing geometry shapes the neural representation of the dynamic three-dimensional environment - nature neuroscience - 2019
• boundy-singer/ziemba/goris - confidence reflects a noisy decision reliability estimate - nature human behavior - 2023
• brette - is coding a relevant metaphor for the brain? - behavioral and brain sciences - 2018
• brinkman/weber/rieke/shea-brown - how do efficient coding strategies depend on origins of noise in neural circuits? - plos comp bio - 2016
• burr/tozzi/morrone - neural mechanisms for timing visual events are spatially selective in real-world coordinates - nature neuroscience - 2007
• caramellino/etal - rat sensitivity to multipoint statistics is predicted by efficient coding of natural scenes - elife - 2021
• chaisanguanthum/lisberger - a neurally efficient implementation of sensory population decoding - j neuroscience - 2011
• chau/kolling/hunt/walton/rushworth - a neural mechanism underlying failure of optimal choice with multiple alternatives - nature neuroscience - 2014
• cheyette/piantadosi - a unified account of numerosity perception - nature human behavior - 2020
• chikkerur/serre/tana/poggio - what and where: a bayesian inference theory of attention- vision research - 2010
• chopin/mamassian - predictive properties of visual adaptation - current biology - 2012
• cicchini/arrighi/cecchetti/giusti/burr - optimal encoding of interval timing in expert percussionists - j neurosci - 2012

• cicchini/anobile/burr - spontaneous perception of numerosity in humans - nat communications - 2016

• clark/fitzgerald/ales/gohl/silies/norcia/clandinin - flies and humans share a motion estimation strategy that exploits natural scene statistics - nature neuroscience - 2014

• coen-cagli/kohn/schwartz - flexible gating of contextual influences in natural vision - nat neuro - 2015

• cohen/maunsell - attention improves performance primarily by reducing interneuronal correlations - nature neuroscience - 2009

• clark/fitzgerald/ales/gohl/silies/norcia/clandinin - flies and humans share a motion estimation strategy that exploits natural scene statistics - nature neuroscience - 2014

• cooper/norcia - perceived depth in natural images reflects encoding of low-level luminance statistics - j neurosci - 2014

• crane - direction specific biases in human visual and vestibular heading perception - plos one - 2012

• curran/enton/harris/hibbard/beattie - adapting to time: duration channels do not mediate human time perception - jov - 2016

• d’acremont/schultz/bossaerts - the human brain encodes event frequencies while forming subjective beliefs - j neurosci - 2013

• dapello/feather/Le/marques/cox/mcdermott/dicarlo/chung - neurips - 2021

• dean/harper/mcalpine - neural population coding of sound level adapts to stimulus statistics - nature neurosci - 2005

• dehaene/izard/spelke/pica - log or linear? distinct intuitions of the number scale in western amazonian indigene cultures - science - 2008

• demartino/fleming/garrett/dolan - confidence in value-based choice - nature neuroscience - 2014

• demeyer/deGraef/verfaille/wagemans - perceptual grouping of object contours survives saccades - plos one - 2011

• denison/bonawitz/gopnik/griffiths - rational variability in children’s causal inferences: the sampling hypothesis - cognition - 2012

• dhawale/miyamoto/smith/ölvecky - adaptive regulation of motor variability - current biology - 2019

• ding/cueva/tsodyks/qian - visual perception as retrospective bayesian decoding from high- to low-level features - pnas - 2017

• drevet/drugowitsch/wyat - efficient stabilization of imprecise statistical inference through conditional belief updating - nat hum behavior - 2022

• drugowitsch/moreno-bote/churchland/shadlen/pouget - the cost of accumulating evidence in perceptual decision making - j neurosci - 2012

• drugowitsch/wyat/devauchelle/koechlin - computational precision of mental inference as critical source of human choice suboptimality - neuron - 2016

• drugowitsch/mendonca/mainen/pouget - learning optimal decisions with confidence - pnas - 2019
• ehinger/hausser/ossandon/konig - humans treat unreliable filled-in percepts as more real than veridical ones - eLife - 2017
• eldar/felso/cohen/niv - a pupillary index of susceptibility to decision biases - nat human behavior - 2021
• elliott/wing/welchman - moving in time: bayesian causal inference explains movement coordination to auditory beats - proc royal society b - 2014
• esnaola-acebes/roxin/wimmer - flexible integration of continuous sensory evidence in perceptual estimation tasks - pnas - 2022
• ester/sprague/serences - categorical biases in human occipitoparietal cortex - j neurosci - 2020
• fernandes/stevenson/vilares/kording - the generalization of prior uncertainty during reaching - j neuroscience - 2014
• fischer/whitney - serial dependence in visual perception - nat neuroscience - 2014
• fleming/maloney/daw - the irrationality of categorical perception - j neurosci - 2013
• franke/willeke/ponder/galdamez/zhou/muhammad/tolias - state-dependent pupil dilation rapidly shifts visual feature selectivity - nature - 2022
• freedman/assad - experience-dependent representation of visual categories in parietal cortex - nature - 2006
• freidin/kacelnik - rational choice, context dependence, and the value of information in european starlings (sturnus vulgaris) - science - 2011
• fritsche/mostert/deLange - opposite effects of recent history on perception and decision - current biology - 2017
• froudarakis/berens/ecker/cotton/sinz/yatsenko/saggau/bethge/tolias - population code in mouse V1 facilitates readout of natural scenes through increased sparseness - nat neuroscience - 2014
• gavornik/bear - learned spatiotemporal sequence recognition and prediction in primary visual cortex - nature neuroscience - 2014
• gepshtein/lesmes/albright - sensory adaptation as optimal resource allocation - pnas - 2013
• gershman/tenenbaum/jakel - discovering hierarchical motion structure - vision research - 2016
• geurts/cooke/vanBergen/jehee - subjective confidence reflects representation of bayesian probability in cortex - nat hum behav - 2022
• girshick/landy/simoncelli - cardinal rules: visual orientation perception reflects knowledge of environmental statistics - nature neuroscience - 2011
• glickman/moran/usher - evidence integration and decision confidence are modulated by stimulus consistency - nat hum behav - 2022
• gold/law/connolly/bennur - relationships between the threshold and slope of psychometric and neurometric functions during perceptual learning: implications for neuronal pooling - j neurophys - 2010
• goldstein/etal - shared computational principles for language processing in humans and deep language models - nature neuroscience - 2022
• goris/movshon/simoncelli - partitioning neuronal variability - nature neuroscience - 2014
• graziano/polosecki/shalom/sigman - parsing a perceptual decision into a sequence of moments of thought - frontiers in integrative neuroscience - 2011
• green/benson/kersten/schrater - alterations in choice behavior by manipulations of world model - pnas - 2010
• griffiths/tenenbaum - predicting the future as bayesian inference: people combine prior knowledge with observations when estimating duration and extent - j of experimental psychology: general - 2011
• gutierrez/deneve - population adaptation in efficient balanced networks - elife - 2019
• hanks/mazurek/kiani/hopp/shadlen - elapsed decision time affects the weighting of prior probability in a perceptual decision task - j neuroscience - 2011
• harvey/coen/tank - choice-specific sequences in parietal cortex during a virtual-navigation decision task - nature - 2012
• he/kersten/fang - opposite modulation of high- and low-level visual aftereffects by perceptual grouping - current biology - 2011
• held/cooper/banks - blur and disparity are complementary cues to depth - current biology - 2012
• heng/woodford/polania - efficient sampling and noisy decisions - elife - 2020
• heron/aaen-stockdale/hotchkins/roach/mcgraw/whitaker - duration channels mediate human time perception - proc. of royal society B - 2011
• ho/burr/alais/morrone - auditory perceptual history is propagated through alpha oscillations - current biology - 2019
• hohl/chaisanguanthum/lisberger - sensory population decoding for visually guided movements - neuron - 2013
• houlsby/huszar/ghassemi/wolpert/lengyel - cognitive tomography reveals complex, task-independent mental representations - current biology - 2013
• hsu/griffiths - effects of generative and discriminative learning on use of category variability - pre-print - 2010
• jazayeri/shadlen - temporal context calibrates interval timing - nature neuroscience - 2010
• jepma/wagenmakers/nieuwenhuis - temporal expectation and information processing: a model-based analysis - cognition - 2012
• jonas/kording - could a neuroscientist understand a microprocessor? - biorxiv - 2016
• jun/field/pearson - scene statistics and noise determine the relative arrangement of receptive field mosaics - pnas - 2021
• juni/gureckis/maloney - effective integration of serially presented stochastic cues - journal of vision - 2012
• kadkhodaie/guth/mallat/simoncelli - learning multi-scale local conditional probability models of images - ICLR conf - 2023
• kappes/harvey/lohrenz/montague/sharot - confirmation bias in the utilization of others’ opinion strength - nature neuroscience - 2020

• karklin/lewicki - emergence of complex cell properties by learning to generalize in natural scenes - nature - 2009

• katz/hennig/cormack/huk - a distinct mechanism of temporal integration for motion through depth - j neurosci - 2015

• kemp/bernstein/tenenbaum - a generative theory of similarity - procs of the 27th ann conf of the cogsci society - 2005

• koyluoglu/pertzov/manohar/husain/fiete - fundamental bound on the persistence and capacity of short-term memory stored as graded persistent activity - elife - 2017

• kriegeskorte/simmons/bellgowan/baker - circular analysis in systems neuroscience: the danger of double dipping - nature neuroscience - 2009

• kriegeskorte/mur/ruff/kiani/bodurka/esteky/tanaka/bandettini - matching categorical object representations in inferior temporal cortex of man and monkey - neuron - 2008

• krishna/lee/fei-fei/bernstein - socially situated artificial intelligence enables learning from human interaction - pnas - 2022

• kvam/pleskac/yu/busemeyer - interference effects of choice on confidence: quantum characteristics of evidence accumulation - pnas - 2015

• kwak/curtis - Unveiling the abstract format of mnemonic representations - neuron - 2022

• lake/salakhutdinov/tenenbaum - human-level concept learning through probabilistic program induction - science - 2015

• lazar/lewis/fries/nikolic - Visual exposure enhances stimulus encoding and persistence in primary cortex - pnas - 2021

• laquitaine/gardner - a switching observer for human perceptual estimation - neuron - 2017

• lengyel/koblinger/popovic/fiser - on the role of time in perceptual decision making - arXiv - 2015

• li/sprague/joh/ma/curtis - joint representation of working memory and uncertainty in human cortex - neuron - 2021

• lin/okun/carandini/harris - the nature of shared cortical variability - neuron - 2015

• louie/khaw/glimcher - normalization is a general neural mechanism for context-dependent decision making - pnas - 2013

• lyu/simoncelli - nonlinear image representation using divisive normalization - computer vision and pattern recognition - 2008

• ma/navalpakkam/beck/vanDenBerg/pouget - behavior and neural basis of near-optimal visual search - nature neuroscience - 2011

• maloney/mamassian - bayesian decision theory as a model of human visual perception: testing bayesian transfer - visual neuroscience - 2009

• masis/chapman/rhee/cox/saxe - strategically managing learning during perceptual decision making - elife - 2023
• parise/ernst - correlation detection as a general mechanism for multisensory integration - nature communications - 2016

• park/huber - a visual sense of number emerges from divisive normalization in a simple center-surround convolutional network - elife - 2022

• pasquali/timmermans/cleeremans - know thyself: metacognitive networks and measures of consciousness - cognition - 2010

• patterson/wissig/kohn - adaptation disrupts motion integration in the primate dorsal stream - neuron - 2014

• petschner/glassauer - iterative bayesian estimation as an explanation for range and regression effects: a study on human path integration - 2011

• pooresmaeili/poort/roelfsema - simultaneous selection by object-based attention in visual and frontal cortex - pnas - 2014

• prat-carrabin/woodford - efficient coding of numbers explains decision bias and noise - nature hum behav - 2022

• prelec/seung/mccoy - a solution to the single-question crowd wisdom problem - nature - 2017

• price/born - adaptation to speed in macaque middle temporal and medial superior temporal areas - j neurosci - 2013

• qin/farashahi/lipshutz/sengupta/chklovskii/pehlevan - coordinated drift of receptive fields in hebbian/anti-hebbian network models during noisy representation learning - nature neuroscience - 2023

• rajan/harvey/tank - recurrent network models of sequence generation and memory - neuron - 2016

• rast/drugowitsch - adaptation properties allow identification of optimized neural codes - neurips - 2020

• rhea/rietdyk/haddad - locomotor adaptation versus perceptual adaptation when stepping over an obstacle with a height illusion - plos one - 2010

• rich/gureckis - the value of approaching bad things - proceedings of cogsci - 2014

• rich/wallis - decoding subjective decisions from orbitofrontal cortex - nat neurosci - 2016

• rideaux/welchman - but still it moves: static image statistics underlie how we see motion - j neurosci - 2020

• rideaux/storrs/maiello/welchman - how multisensory neurons solve causal inference - pnas - 2021

• rideaux/west/rangelov/mattingley - distinct early and late neural mechanisms regulate feature-specific sensory adaptation in the human visual system - pnas - 2023

• rolf/dambacher/cavanagh - visual adaptation of the perception of causality - current biology - 2013

• rombach/blattmann/lorenz/esser/ommer - high-resolution image synthesis with latent diffusion models - arXiv - 2022

• rosenberg/cowan/angelaki - the visual representation of 3d object orientation in parietal cortex - j neurosci - 2013

• rutledge/skandali/dayan/dolan - dopaminergic modulation of decision making and subjective well-being - j neurosci - 2015
• samonds/geisler/priebe - natural image and receptive field statistics predict saccade sizes - nat neuroscience - 2018
• sato/koerding - how much to trust the senses: likelihood learning - j vision - 2014
• sarafiazed/jazayeri - hierarchical reasoning by neural circuits in the frontal cortex - science - 2019
• saxe/bhand/mudur/suresh/ng - unsupervised learning models of primary cortical receptive fields and receptive field plasticity - NIPS - 2011
• schindel/rowlands/arnold - the oddball effect: perceived duration and predictive coding - journal of vision - 2011
• schoups/vogels/qian/orban - practising orientation identification improves orientation coding in V1 neurons - nature - 2001
• schwarzkopf/song/rees - the surface area of human V1 predicts the subjective experience of object size - nature neuroscience - 2011
• shen/ma - a detailed comparison of optimality and simplicity in perceptual decision making - psychological review - 2016
• shenhav/botvinick/cohen - the expected value of control: an integrative theory of anterior cingulate cortex function - neuron - 2013
• sherwin/sajda - musical experts recruit action-related neural structures in harmonic anomaly detection: evidence for embodied cognition in expertise - brain and cognition - 2013
• simkin/roychowdhury - stochastic modeling of a serial killer - arXiv - 2012
• simmons/nelson/simonsohn - false-positive psycholgy: undisclosed flexibility in data collection and analysis allows presenting anything as significant - psychological science - 2011
• simoncini/perrinet/montagnini/mamassian/masson - more is not always better: adaptive gain control explains dissociation between perception and action - nature neurosci - 2012
• sims - rate–distortion theory and human perception - cognition - 2016
• sims/jacobs/knill - an ideal observer model of visual short-term memory predicts human capacity–precision tradeoffs - cog neurosci - 2011
• singer/teramoto/willmore/schnupp/king/harper - sensory cortex is optimized for prediction of future input - eLife - 2018
• spitzer/waschke/summerfield - selective overweighting of larger magnitudes during noisy numerical comparison - nature human behaviour - 2017
• sprague/cooper/tosic/banks - stereopsis is adaptive for the natural environment - science advances - 2015
• sohn/jazayeri - validating model-based bayesian integration using prior–cost metamers - pnas - 2021
• soltani/wang - synaptic computation underlying probabilistic inference - nature neuroscience - 2010
• sreenivasan/fiete - grid cells generate an analog error-correcting code for singularly precise neural computation - nature neuroscience - 2010
• stachenfeld/botvinick/gershman - the hippocampus as a predictive map - nat neurosci - 2017
• stavropoulos/etal - influence of sensory modality and control dynamics on human path integration - elife - 2022
• steiner/redish - behavioral and neurophysiological correlates of regret in rat decision-making on a neuroeconomic task - nat neurosci - 2014
• straub/rothkopf - putting perception into action with inverse optimal control for continuous psychophysics - elife - 2022
• stilp/rogers/kluender - rapid efficient coding of correlated complex acoustic properties - PNAS - 2010
• suchov/pelli - learning to detect and combine the features of an object - PNAS - 2012
• sun/oreilly/bhattacharyya/smith/liu/want - latent structure in random sequences drives neural learning toward a rational bias - pnas - 2015
• sussillo/abbott - generating coherent patterns of activity from chaotic neural networks - neuron - 2014
• talluri/urai/tsetsos/usher/donner - confirmation bias through selective overweighting of choice-consistent evidence - current biology - 2018
• taylor/bays - efficient coding in visual working memory accounts for stimulus-specific variations in recall - j neursci - 2018
• tsetsos/moran/moreland/chater/usher/summerfield - economic irrationality is optimal during noisy decision making - pnas - 2016
• unsworth/robison - pupillary correlates of lapses of sustained attention - cogn affect behav neurosci - 2016
• urai/donner - persistent activity in human parietal cortex mediates perceptual choice repetition bias - nature comm - 2022
• vanDenBerg/ma - a resource-rational theory of set size effects in human visual working memory - elife - 2018
• vanpaemel - strong theory testing using the prior predictive and the data prior - psychological review - 2020
• vilares/howard/fernandes/gottfried/kording - differential representations of prior and likelihood uncertainty in the human brain - current biology - 2012
• vintch/gardner - cortical correlates of human motion perception biases - j neurosci - 2014
• vuong/friedman/read - the relative weight of shape and non-rigid motion cues in object perception: a model of the parameters underlying dynamic object discrimination - j of vision - 2012
• walker/cotton/ma/tolias - a neural basis of probabilistic computation in visual cortex - nature neurosci - 2020
• wammes/norman/turk-browne - increasing stimulus similarity drives nonmonotonic representational change in hippocampus - elife - 2022
• ward/herbert-read/sumpter/krause - fast and accurate decisions through collective vigilance in fish shoals - PNAS - 2011
• webb/ledgeway/mcgraw - relating spatial and temporal orientation pooling to population decoding solutions in human vision - vision research - 2010
• wei/prentice/balasubramanian - a principle of economy predicts the functional architecture of grid cells - elife - 2015
• wilmes/etal - learning and attention increase visual response selectivity through distinct mechanisms - neuron - 2022
• wilson/nassar/gold - a mixture of delta-rules approximation to bayesian inference in change-point problems - pLoS computational biology - 2013
• wozny/beierholm/shams - probability matching as a computational strategy used in perception - plos comp biology - 2010
• wu/miyamoto/castro/ölvèczky/smith - temporal structure of motor variability is dynamically regulated and predicts motor learning ability - nature neuroscience - 2014
• xie/etal - geometry of sequence working memory in macaque prefrontal cortex - science - 2022
• yan/rasch/chen/xiang/huang/wu/li - perceptual training continuously refines neuronal population codes in primary visual cortex - nat neurosci - 2014
• yang/shadlen - probabilistic reasoning by neurons - nature - 2007
• yang/lengyel/wolpert - active sensing in the categorization of visual patterns - elife - 2016
• yi/merfeld - a quantitative confidence signal detection model: fitting psychometric functions - j neophys - 2016
• zylberberg/ouellette/sigman/roelfsema - decision making during the psychological refractory period - current biology - 2012
• zhang/kwon/tadin - illusory movement of stationary stimuli in visual periphery: evidence for a strong centrifugal prior - j neurosci - 2013