

Scottish Vision Group 2026

Annual meeting

Abstract Booklet
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Keynote (Friday 17.30-18.45)

Measuring perception without shaping it: New tools for active vision

Nina M. Hanning

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Every eye movement reshapes visual input. Perception does not simply react to gaze shifts—it is already dynamically tuned in the moments leading up to action. Capturing these rapid perceptual dynamics is a central goal in vision science, yet it poses a methodological challenge: the more precisely we try to measure sensitivity around eye movements, the more our experimental tools risk biasing the very processes we aim to observe.

Classic approaches often rely on tightly controlled protocols that cue isolated eye movements to predefined locations and times. While this enables fine temporal alignment, it also introduces important limitations: behavior becomes unnatural, observers can anticipate when and where stimuli will appear, and many paradigms are difficult to extend beyond narrow samples of healthy young participants. A key objective for the field is therefore to develop methods that preserve rigor while increasing ecological validity and accessibility.

In this keynote, I will discuss recent work toward this goal. I will highlight stimulus and task designs that allow visual sensitivity to be probed without salient transients that alter perceptual processing or influence eye-movement planning. I will demonstrate how such approaches can reveal subtle perceptual dynamics across saccades, dissociate genuine sensorimotor updating from stimulus-driven artifacts, and provide characteristic perceptual signatures across eye movements. Alongside these measurement advances, I will show how eye movements themselves can serve as powerful no-report readouts of perceptual and behavioral priority, offering new ways to infer what the visual system selects and processes under more natural conditions.

Together, these advances illustrate how refining our measurement toolbox can broaden the validity and reach of active vision research—offering a path toward studies in broader populations such as children, older adults, and clinical groups—and bringing us closer to understanding perception as it unfolds in natural vision.

Talk session 1 (Saturday 9.30-10.30)

1. When letters shape vision: Neural evidence for synaesthesia

Thomas Alrik Sørensen

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Synaesthesia is a variation within the neurotypical population in which atypical cross-modal associations occur. For example, grapheme–colour synaesthetes experience a colour sensation when viewing letter shapes. The mechanisms underlying synaesthesia remain debated. We propose that synaesthesia may draw on a more general mechanism – expertise -- and reflect a cognitive strategy developed and refined to efficiently process a particular information category (e.g., letters). We have previously demonstrated that attentional parameters modulated by synaesthetic congruence (Ásgeirsson et al., 2015) resemble those modulated by perceptual expertise (Dall et al., 2021), and we have argued that long-term memory templates play a central role in perceptual processing (Brogaard & Sørensen, 2024). Although several findings support this account, attempts to train synaesthesia in non-synaesthetic individuals have met with limited success. However, studies using EEG indicate that semantic information -- presumably instantiated in long-term memory templates -- can influence both perceptual (Thierry et al., 2009) and conceptual processing (Casaponsa et al., 2024). Using a variation of the visual mismatch negativity paradigm in a case-control design, Zelazny, Dietz, and Sørensen (submitted) demonstrate a synaesthesia-related neural response to an oddball stimulus. These findings support the expertise account and identify a potential neural marker of synaesthesia that does not rely on behavioural consistency measures.

2. Generative models can explain (or at least help us understand) individual differences in cognition

Alasdair D. F. Clarke¹, Anna E. Hughes¹, Amelia R. Hunt²

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Nearly all experiments in cognition and visual perception involve taking multiple measurements from each participant. This includes taking multiple recordings of the same concept (e.g., recording response time on a number of trials), and taking multiple measurements per trial (e.g., response time and accuracy). The number of measurements expands as we add in eye-tracking metrics, EEG statistics, and so on. Researchers interested in individual differences typically assume that these measurements are i) mutually independent and ii) free from confounds, before taking simple summary statistics and then applying correlation procedures. A general theme of research on individual differences in our field has been a lack of correlations. I argue that, on reflection, this shouldn't be surprising, as the measurements we put into our correlations are imprecise

composites of multiple causal factors. For example, it is well established that reaction times are influenced by learning and inter-trial serial dependencies. This means that participants in a hypothetical visual search experiment may all have identical “skill” in search, but could exhibit wildly different RTs due to differences in learning rates and serial dependency effects. I present simulated data to demonstrate how such processes can both mask correlations and produce spurious correlations. A potential solution to my hypothetical problem is the use of generative models with latent parameters. I provide an example in the form of FoMo, which decomposes performance in visual foraging into a small number of per-participant parameters.

3. Approach biases towards food are robust across real and pictorial stimuli

Daniela Ruseva, Martin Giesel, Constanze Hesse
University of Aberdeen

Approach biases towards food are typically studied using food images, but it remains unclear if and how these biases generalise to real food which is essential to assess the ecological validity of image based retraining procedures. Across two experiments, we investigated whether food biases differ between real food and object items and images taken of the same stimuli in a stimulus-response compatibility (SRC) task. In Experiment 1 (N=32), participants responded by moving a stick-figure either towards or away from food or object stimuli. Shutter glasses were used to occlude participants’ vision in-between trials. Results demonstrated a robust approach bias towards food that did not differ between real and pictorial stimuli. Overall RTs were slower for real stimuli. As intertrial-intervals were much longer when placing real-stimuli, we tested in Experiment 2 (N=30), whether longer intertrial intervals may reduce overall biases. Participants completed another image-based SRC-task and intertrial intervals varied randomly between 10s to 15s mimicking the length of real stimuli exchange in Experiment 1. Results revealed biases of similar size as observed in Experiment 1 suggesting no dampening effects of inter-trial interval length on biases. In sum, our experiments demonstrate that findings obtained with food images in the SRC task generalise to real food stimuli suggesting that images may be suitable for use in SRC-based training. These findings are also consistent with our previous observation that the SRC task reflects higher-level motivational mechanisms and is largely insensitive to low-level perceptual stimulus features.

Talk session 2 (Saturday 11.00-12.00)

1. Breaking the underestimation effect: Investigating numerosity estimation in grouping paradigms

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Numerosity estimation is a key ability for humans and several non-human species. Current research indicates that numerosity perception is influenced by several Gestalt grouping cues, including connectivity, enclosure, and feature-based grouping; these grouping cues predictably lead to participants underestimating the numerosity of dot displays relative to ungrouped displays. In a series of experiments, we attempted to replicate this underestimation effect under different paradigms. In an EEG study, participants were shown dot displays that were either grouped by colour or with colourful dots randomly intermixed. They reported whether each display contained more or fewer dots than a previously shown reference which always contained the same number of dots. After fitting psychometric functions to the behavioural data, the differences between the points of subjective equality (PSE) for grouped and ungrouped displays indicated that participants were overestimating grouped displays. In the following behavioural experiments, participants either completed this same task or a 2IFC comparison between the reference and another dot display. Preliminary data shows no difference between the grouped and ungrouped displays, and as such does not show over- or underestimation. The disparity between findings across different methodologies suggests that the underestimation effect may be less robust than previous research has shown.

2. Effects of lithium treatment on threshold and suprathreshold vision in individuals with bipolar disorder: Findings from the Helios-BD study

Jasna Martinovic, Joel Martin

University of Edinburgh

The HELIOS-BD study is a large-scale investigation of the hypothesis that lithium treatment in bipolar disorder acts at the level of the retina to quell hypersensitivity to light. The project integrates multimodal data from individuals with bipolar disorder, euthymic at time of testing, who are treated with lithium (n = 31) or receiving alternative pharmacotherapy (n = 43), as well as healthy controls (n = 49; target n = 60 per group). Here we report findings from the psychophysics arm. To assess vision at threshold, we measured cone-isolating chromatic thresholds and colour and luminance contrast sensitivity functions. We also evaluated suprathreshold hue matching and perceived contrast matching, to assess processing away from threshold. We find more pronounced alterations in contrast processing in the lithium-treated group both for threshold tasks, which mainly rely on output from those units most sensitive to the signal, and for suprathreshold tasks, which

rely on output of much larger and more inter-dependent neuronal populations. The lithium-treated group exhibits elevated chromatic thresholds, decreased contrast sensitivity at 2-6 cpd for luminance and 6 cpd (the highest spatial frequency tested) for L-M mechanism, somewhat broader (~ 1.4 - 1.8° in CIE LAB) just noticeable differences for desaturated hues, and no robust changes to perceived contrast despite noisier data (i.e., elevated standard errors across trials). These pervasive changes point towards involvement of multiple neuronal sites, which seem to operate under increased noise. Noisiness persists as increased variability at suprathreshold contrast levels, but it does not lead to altered appearance in euthymic observers.

3. Spatiochromatic visual evoked potentials in bipolar disorder: Findings from the HELIOS-BD Study

Joel Martin, Jasna Martinovic
University of Edinburgh

The HELIOS-BD study is a large-scale, longitudinal investigation into lithium's mechanism of action in bipolar disorder. The project integrates multimodal data from individuals with bipolar disorder treated with lithium (current $n = 49$), those receiving alternative pharmacotherapy (current $n = 31$), and healthy controls (current $n = 43$), to test whether lithium reduces hypersensitivity to light at the retinal level. Here we report findings from the electrophysiology arm of the study. Pattern-onset visual evoked potentials (VEP) were recorded using a 64-channel EEG system in response to spatiochromatic stimuli isolating luminance, L-M, and S-(L+M) pathways. Logarithmically spaced contrast levels were used to examine the slope of the contrast response function. Interim analyses show that group differences are limited. The only significant effect observed is between the lithium-treated and healthy control groups in the L-M pathway at the two highest contrast levels. At these suprathreshold contrasts, lithium-treated participants showed altered VEP amplitudes relative to healthy controls. No significant differences were detected at lower contrasts or in other chromatic or achromatic conditions. The bipolar disorder group not treated with lithium did not differ significantly from healthy controls. These findings indicate selective alterations in cone-opponent cortical processing in lithium-treated bipolar disorder under high-contrast conditions.

Talk session 3 (Saturday 15.00-16.20)

1. Perceived unpleasantness and roughness affect contact force independently across haptic-only and visuo-haptic conditions

Zhong Jian Chee, Martin Giesel, Constanze Hesse
University of Aberdeen

People have been found to exert less force when touching rough surfaces, possibly reflecting avoidance of unpleasant haptic experiences, but this relationship remains untested. To address this, we asked participants (N = 18) to stroke sandpaper stimuli varying in grit value (roughness) mounted on a 6-axis force sensor (BOTA MiniONE Pro). After each trial, participants rated the perceived unpleasantness, roughness, and dangerousness of the stimuli. Trials were completed under haptic-only, visual-only, and visuo-haptic conditions. Across force parameters, i.e., tangential force, normal force, and tangential force variability, values were generally higher in the visuo-haptic condition than in the haptic-only condition, indicating an inclination to be more cautious in the absence of vision. Both tangential and normal forces decreased as perceived unpleasantness increased, with this effect being more pronounced when visual information was available. In contrast, tangential force, but not normal force, increased with perceived roughness similarly across haptic-only and visuo-haptic conditions. Tangential force variability also increased with roughness but decreased with perceived dangerousness. Over repeated trials, tangential and normal forces declined in the visuo-haptic condition but increased in the haptic-only condition. These preliminary findings indicate that discriminative (roughness) and affective (unpleasantness) dimensions of touch independently shape contact force during free exploration. They further indicate that visual cues modulate force adjustments associated with affective evaluations of touch.

2. Many experimental studies of visual attention are massively underpowered

Gregory Francis¹, Evelina Thunell²
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Rosenholtz (2024) argued that visual attention required a Khunian paradigm shift to address unexplained anomalies in studies of visual attention. While we agree that experimental studies produce conflicting results, we show that such conflicts are to be expected, given the quality of many experimental studies. In particular, many studies use sample sizes that have a low probability of showing statistical significance for the effects of interest. For example, based on data from around 75,000 participants, the classic Posner spatial cuing task shows a difference of response times for valid and invalid cues of around 39 milliseconds, with a standard deviation for the difference of 107 milliseconds.

Calculations show that to have 80% power to demonstrate a basic cuing effect requires a sample of $N=62$, but a meta-analysis of spatial cuing studies indicates that experimental studies typically use $N=18$, which corresponds to power of 36%. Worse still, many modern studies investigate deviations in the basic effect. A study looking for a difference between the cuing effect for a control group and an experimental group that produces half the cuing effect requires samples of $N_1=N_2=480$ to produce power of 80%. Studies with the typical sample size have power of only 8%, so they should produce anomalies; but these anomalies do not need to be explained because they largely represent noise. Many other paradigms for visual attention have similar characteristics. The problem is easily addressed by including power analyses as a standard part of experimental design.

3. Attention span (whatever that is): Insights from multiple object tracking

Nika Adamian¹, Rosalind Hillhouse³, Søren K. Andersen^{2,3}

¹Liverpool John Moores University, ²University of Southern Denmark, ³University of Aberdeen

Selective attention supports many aspects of perception and goal-directed behaviour. Individual differences in attentional capacity are substantial, yet their neural correlates remain poorly understood. This study used multiple object tracking combined with self-report measures of distractibility to investigate this question. Forty-eight participants completed a multiple object tracking task in which they tracked four targets among a total of 8, 12, or 16 moving objects, while frequency-tagged steady-state visual evoked potentials (SSVEPs) indexed attention to targets and distractors. Participants also completed a validated questionnaire assessing inattention symptoms (ASRS). Unexpectedly, individuals with higher ASRS scores showed a steeper improvement in tracking accuracy across the session, outperforming less distractible individuals by the end. Break-taking patterns across the session also differed as a function of distractibility, suggesting differences in self-regulatory behaviour or fatigue management across the task. At the neural level, ASRS scores were positively correlated with SSVEP amplitudes, with more distractible individuals showing stronger visual cortical responses. However, attentional modulation of SSVEPs -- the difference in neural response between targets and distractors -- did not differ as a function of distractibility. Together, these results suggest that trait distractibility is associated with overall stronger sensory signals, and that combined performance-based and neural markers capture individual variation in attentional capacity.

4. The processing of visual scenes is best understood in terms of perceptual encoding and post-perceptual decisions

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Recent interest has focussed on how best to understand the perception of scenes. Critical information about the nature of a scene can be derived very rapidly, and global-level properties, that convey whether a scene is natural or man-made, are made available prior to scene identity. Further work has established that scene attractiveness is also rapidly recovered. Here we examine whether a different affective property of a scene (i.e., scene serenity known as an ‘atmosphere’) is also rapidly recovered. Following appropriate image selection, in which ratings of naturalness, attractiveness and serenity were collected, three respective speeded judgment tasks were undertaken. The results showed that whereas judgments of naturalness and attractiveness were equivalently fast, judgments of serenity took longer to make. Analyses of the corresponding reaction time distributions revealed that whereas the speed of perceptual encoding was equivalent in the three cases, the lag in making serenity judgments reflected time penalties in deciding about scene serenity. It seems therefore that whereas the perceptual system is configured to recover scene statistics that readily support certain scene appraisals, more nuanced scene judgments reflect the speed with which post-perceptual decisions are made.

Talk session 4 (Saturday 17.00-18.20)

1. High lights and low lights: A dissociation between illumination and contrast in obstacle avoidance

Martin Giesel, Constanze Hesse

University of Aberdeen

Previously (SVG2024), we showed that safety margins during manual obstacle avoidance increase under mesopic lighting. In many XR applications, users interact without seeing their real hand, relying on virtual representations. We investigated in two experiments how illumination and obstacle contrast affect safety margins when avoiding virtual obstacles with virtual hand representations. Participants performed an obstacle avoidance task in a mirror setup. A virtual cuboid appeared as a mirror reflection in the workspace. Motion tracking markers on the index finger and wrist were visualised as two rectangles moving in the x-y plane. In Experiment 1 (N=25), workspace and obstacle illumination was either high or low. In Experiment 2 (N=24), overall illumination was low, but the area beneath the obstacle had either high or low contrast relative to the background. In both experiments, collision feedback was manipulated: the area beneath the obstacle turned red upon contact. Safety margins were affected by illumination and contrast in opposite ways.

Replicating our previous findings, safety margins were larger under low illumination. In contrast, safety margins were larger for high-contrast obstacles. Collision feedback also increased safety margins. These findings show that safety margins are not determined by visibility alone, but by context-dependent interpretations of risk. Reduced illumination likely increases sensory uncertainty, whereas higher contrast enhances obstacle salience. This dissociation is striking because it shows that the motor system does not simply scale behaviour with overall uncertainty. Instead, it selectively responds to the salience of task-relevant obstacles, adopting more conservative movements for more perceptually prominent obstacles.

2. Scottish perspectives on Stereopsis

Dhanraj Vishwanath

University of St. Andrews

The question “What is Stereopsis?” has occupied a special place in history of perception research reaching back to its very beginnings during the Italian Renaissance. Curiously, over the last two centuries, Scotland has often been at the center of attempts to answer this question, starting with Brewster’s work on the stereoscope. In this brief talk, I will sketch out the evolving definitions and theories of stereopsis from the time of the invention of the stereoscope by Wheatstone to the current debates and controversies in the literature. I focus on the special Scottish contribution to this effort as it evolved from the linkage of stereopsis initially to binocular vision, then to visual parallax, and later to a more general perceptual phenomenon that can also be experienced without visual parallax, e.g., viewing a static image with one eye. The last observation (monocular stereopsis) has played an important role in recent debates for which I present some relevant new data.

3. The travels of Necker’s rhomboid

Nick Wade

University of Dundee

Louis Albert Necker de Saussure (1786-1861) was a Swiss geologist and crystallographer who had close associations with Scotland. He came from a distinguished family in Geneva and received a degree in geology from its University after which he continued his studies at Edinburgh University (1806-1808). He travelled extensively and produced the first geological map of Scotland. In 1841, Necker returned to Scotland where he spent the last 20 years of his life. He is buried in the Free Church cemetery at Portree on the Isle of Skye. His account of a reversing outline rhomboid was published in a letter to Brewster in 1832. Wheatstone (1838) showed that reversals in apparent depth also occur when the half-images of line stereograms are reversed. He examined Necker’s reversals with line drawings and a skeleton cube -- the first use of either 2D or 3D cubes. The 3D cube not only

reversed but Wheatstone remarked on the changes in apparent size accompanying the reversals. However, his stereoscopic outline cubes did not reverse because the disparities were too large for fusion of the half-images. Stereoscopic photographs of a 3D cube do reverse, but they are biased by the disparities they contain. A “cyclopean” cube also reverses. A rotating 3D cube and its mirror image appear to rotate in opposite directions within the range of stereoscopic vision, beyond which they appear to rotate in the same direction.

Talk session 5 (Sunday 9.40-11.00)

1. Temporal dynamics of global feature-selective attention to colour

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Many experiments in humans and animals have observed a “global” facilitation of attended features across the entire visual field, even when spatial attention is focused on a single location. In two experiments, we investigated the temporal dynamics of such global feature-selective attention. Participants attended to superimposed fields of either red or blue randomly moving dots on either the left or right side of fixation with the task of detecting brief coherent motion targets. Recordings of steady-state visual evoked potentials elicited by the flickering stimuli allowed concurrent measurement of the time course of feature-selective attention in visual cortex on both the attended and the unattended sides. The first experiment revealed that the onset of feature-selective attentional modulation on the attended side occurred around 150 ms earlier than on the unattended side. This finding that feature-selective attention is not spatially global from the outset but extends to unattended locations after a temporal delay resolves previous contradictions between studies finding global versus hierarchical selection of features. When the onset of dots on the attended side was delayed relative to the unattended side in the second experiment, we observed a global feature-selective enhancement prior to the onset of the attended side dots. We propose that this spread of preparatory attention to relevant features is crucial for guided visual search. Taken together, these findings provide insight into the fundamental relationship between feature-based and location-based (spatial) attention mechanisms.

2. Searching for a shortcut: Does anything (besides practice) improve visual search efficiency?

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During visual search, eye movements bring regions of the search area into higher resolution. Some regions are more informative than others: regions where visual noise or clutter is higher will yield more new information, and regions in which the target would be expected to pop out yield comparatively less. Making eye movements to more homogeneous (less cluttered) regions is inefficient, leading to slower search. We find large individual differences in the extent to which participants target informative regions during search (Nowakowska et al., 2017, Proc. R. Soc. B., 284), suggesting efficient search is achievable, yet most people follow a counter optimal strategy. Why are some participants inefficient, and can we improve their strategies? This talk will present a series of interventions, including enhanced spatial feedback (Exp 1) and exposure to particularly hard or easy search conditions (Exp 2) aiming to increase participants' confidence in their target template. Finally, we provided explicit verbal advice to help participants to recognize and implement a more efficient search strategy (Exp 3). Across the experiments, the results consistently demonstrate effects of practice, with efficiency slowly improving over repeated trials. However, none of the interventions changed overall efficiency or the rate of improvement over time. The results reinforce that search strategies are stable, differ widely between individuals, and have large effects on performance. The findings rule out several potential explanations for these differences and have both clinical and practical implications.

3. Emotional photographs: colour-emotion associations in the context of colour filtered photographs

Anita Malik, Brett Cochrane

University of Aberdeen

Colour is a pervasive aspect of human experience and is often assumed to convey emotional meaning, yet most research is carried out using direct association between a colour patch (or a colour phrase) and an emotion. The current study aims to test the integration of colour into context by exploring the impact colour might have on the emotional judgment of photographs. In the study the photographs were filtered to yellow, red, blue, and green and were displayed either as a clear image or pixelated. In Experiments 1 and 2, participants made emotion intensity judgements on matched scales (e.g., yellow matched with joy, red matched with anger, blue matched with sadness, and green matched with disgust). The results indicated that red enhanced anger, blue enhanced sadness, and green enhanced disgust; however, yellow either inverted the effect

(Experiment 1) or enhanced joy (Experiment 2). The findings suggest that colour can influence emotional judgment in a context-dependent manner.

4. Visual foraging patterns as a differential marker for Progressive Supranuclear Palsy and Parkinson's Disease

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Progressive Supranuclear Palsy (PSP) is a rare neurodegenerative disorder that causes disturbances in movement patterns such as eye movements. Due to its rarity, diagnosis is delayed by ~3.5 years compared to more common movement disorders like Parkinson's Disease (PD). We explored the extent to which PSP and PD patients were discriminable by analysing their foraging strategies using a clinical screening tool: The Bell's test. Two patient groups, PD (N = 29) and PSP (N = 28), and age-matched controls (AMC, N = 27), completed a single trial searching for 30 bells among other distractor items (e.g., guitars, lamps, cars) on a landscape A4 sheet. We analysed foraging strategy in the three groups using a generative model that predicts sequences of item selections using latent parameters such as proximity (preference for closer bells), momentum (preference for bells in a forward motion or doubling-back), and absolute direction (preference for bells in a general direction). Our results describe clear differences in strategy. PD patients showed foraging patterns most similar to age-matched controls, with strong absolute directional preferences, revealing clear 'reading-like' patterns either up-down or left-right. Both groups also achieved good item-by-item prediction accuracy (~40%). Conversely, PSP patients demonstrated disorganised search patterns with no clear strategy (i.e., no clear preferences distance or direction), and thus the model achieved low prediction accuracy (~15%). Overall, our model describes clear differences in foraging behaviour between the patient groups, and we discuss additional analyses that can help determine our model's accuracy in discriminability between the two patient groups.

Talk session 6 (Sunday 11.30-12.30)

1. Arachnophobia affects behaviour towards spider images in simple pointing tasks

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A fear of spiders (arachnophobia) is prevalent amongst humans. The level of phobia is commonly assessed using subjective questionnaires, and/or objective avoidance behaviour in virtual or real-world situations. Here we present a simple pointing-task alternative. Participants initiated a trial with their dominant hand by pressing a button fixed to a desk. After a short interval (0.5 to 1 seconds) a circular image was presented on a touch screen. The participants were instructed to hit the image as fast and as accurately as possible using the same hand. In Experiment 1 we used spider and butterfly images. In Experiment 2 we used spider and flower images and added no-go catch trials using mushroom images for which participants were not to make a pointing movement. Both experiments included scrambled versions of the target stimuli to control for their low-level visual aspects. In Experiment 1 we observed that the higher the level of arachnophobia the longer participants tended to take to release the starting button (RT) and complete the pointing movement (CT), irrespective of image content. When adding catch-trials in Experiment 2, making the image-content more task-relevant, image-class specific effects emerged. The higher the level of phobia the slower participants were to release the starting button and the larger the pointing error for spider images, but not for flower images. Taken together these results show that avoidance behaviour of fear-inducing stimuli can be measured in a simple pointing task, that does not rely on special equipment or live spiders.

2. Impressions are in the mind of the beholder: Idiosyncratic trait spaces underlie whole-person impressions

Barbora Illithová¹, Rama Chakravarthi¹, Clare Sutherland^{1,2}

¹*University of Aberdeen*, ²*University of Western Australia*

Impressions about one's traits are quick, largely inaccurate, yet highly consequential. Recently, face impressions were argued to result not only from visual cues (e.g., smiling looks attractive) but also individuals' unique conceptual associations (e.g., believing attractive-looking people are creative). These associations were proposed to reflect an individual-specific domain-general trait space which underlies inferences across distinct areas of social perception. However, this framework had been tested only with face-based perception, questioning its generalisability to domains of bodily or whole-person perception. First, bodies and faces signal distinct impressions, possibly due to different visual cues and/or conceptual associations. Second, considering their visual richness, whole-person impressions may not need input from conceptual associations. Thus, here,

we addressed the role of conceptual associations in impressions of faces, bodies, and whole persons in perceivers on average (Study 1, $N = 643$) and within individuals (Study 2, $N = 125$). First, we find strong correspondence between conceptual associations, face, body, and whole-person impressions, showing these associations predict judgements made to different visual cues. Second, conceptual associations uniquely contribute to whole-person impressions beyond face and body cues, emphasising non-perceptual cues to impressions of visually rich stimuli. Together, we show that not only face-based, but also body-based perception may be underlain by an individual-specific domain-general conceptual association space.

3. Modelling search order and patch leaving decisions in visual foraging

Anna Hughes¹, Alasdair Clarke¹, Mackenzie Siesel², Walden Li², Andrew Leber²

¹*University of Essex*, ²*Ohio State University*

Many recent visual foraging studies have focused on the cognitive processing while participants select targets within a patch: for instance, they have focused on how the perceived value of targets affects selection decisions, or how people make choices between sticking with the same target type or switching to another. We have built a generative Bayesian model (FoMo) that can make relatively accurate target-by-target predictions during foraging tasks. However, a separate strand of foraging research has focused on the question of when people terminate their search in a given area to move onto a new foraging patch. Here, we use a difficult foraging paradigm where participants collect “L-shaped” targets among Ts in either exhaustive blocks (where they must find all ten targets on each trial) or inexhaustive blocks (where they can move on at any point during a given trial but must collect a certain number of targets in total in the block). We then use the results from this paradigm to extend FoMo to allow it to make patch-leaving predictions. We compare our results to other approaches to understanding patch-leaving behaviour (such as Marginal Value Theorem) and discuss how our methods can help to bring together previously disparate parts of the visual foraging literature.