Environment template (REF5)

Institution: University of Stirling
Unit of Assessment: A4 Psychology, Psychiatry and Neuroscience

a. Overview: This submission presents the work of 14 staff from the Division of Psychology, bringing together complementary perspectives from cognitive neuroscience and animal behaviour to address fundamental psychological questions. The Cognition in Complex Environments Group contributes nine FTEs in the areas of cognition, perception and development; the Behaviour and Evolution Research Group contributes five FTEs in the areas of comparative cognition, social cognition and cultural transmission. Together, our long-term endeavour is to understand mind and behaviour in rich, complex real-world physical and social environments. We are pursuing this through the development and deployment of diverse research methods in novel situations, moving rigorous psychological science beyond the laboratory.   Psychology at Stirling is led by three Professors (**Donaldson, Hancock and Watt**), working with the School of Natural Sciences to provide strategic direction and leadership. The School, which focuses on 'The Science of Complex Systems', facilitates the development of Psychology as a discipline in its own right and as a multi-disciplinary science. Psychology's approach is supported by the University of Stirling's 2011-16 Strategic Plan for high-quality impact-focused research, with the School providing rigorous testing of academic ideas against Government, Industry and Third Sector priorities. The local academic environment provides wider critical mass and extensive opportunities for collaboration across the School notably in Computing Science and Biological & Environmental Sciences and in the wider University including Health and Behaviour Change, Behavioural Economics and Sports and Exercise. Externally we have an extensive network of national and International collaborations with over 100 academic and industrial institutions.

b. Research strategy: Our principle strategic aim is to further extend our research into increasingly complex real-world contexts, enhancing the rigour associated with our laboratory studies by combining it with the use of multiple methodologies. Critically, the move to real-world research contexts provides a breadth of multi-disciplinary opportunities and allows us to embed impact into our research from the outset. We are motivated by the belief that the future of Psychology lies in such multi-disciplinary and impact-oriented research, underpinned by strong theory, rich data and powerful computational analysis. We are confident that basic research and impact go naturally together, and that high-quality research investigating complex naturalistic behaviour provides exciting opportunities to develop and test psychological theories. This integrated approach to Research & Impact necessitates a diversity of methods and techniques, allowing researchers to access the measures most appropriate to their question.   **i. Evaluation of our strategy:** We are excited by the move to research in the real-world and are already seeing diverse opportunities and striking new outcomes arising from deploying controlled lab-based methodology in more complex situations. The outputs presented in the current submission provide early examples of our strategy, providing evidence of the innovative nature of our research. For example, in asking what happens when properties of early visual processing are applied to images of text and faces (**Watt**), unexpected outcomes have been discovered. Faces present to the visual system as a set of patterns that share the important properties of bar-codes; the optimum use of white space in typography unexpectedly turns out to be the result of a property of visual neurones in primary visual cortex. Our application of experimental group-based cultural learning paradigms (**Caldwell**) has led to the discovery that social learning is powerful even in restricted circumstances (such as mere observation of another) and is remarkably flexible. The use of eye-tracking to examine gaze behaviour in participants with Autism and Williams Syndrome (**Hancock**) found that while those with Williams Syndrome naturally follow gaze, those with Autism do not, but will try if asked to. Studies of the cognitive processes underlying action and motor behaviour (**Ietswaart**) have led to the examination of mental practice as a therapeutic procedure, unexpectedly revealing that repeated use of motor imagery does not enhance motor recovery in patients early post-stroke – when carefully assessed in a fully randomized controlled trial.   **ii. Outline of aims and objectives**: To achieve our strategy, a key objective for Stirling is the development of a wider methodological base, allowing us to innovate around the observation and measurement of complex systems. We have selected new staff to develop a broader methodological base, including integration of electroencephalography and eye-movement data to

examine language development (**Kuipers**), and motion tracking and neurostimulation techniques to examine visuo-motor imagery (**Ietswaart**). We have also developed new expertise in a number of methods that are complete, but not-yet-published, including: (a) time-locked heart rate variability to assess fluctuations in autonomic activity during face-to-face interactions (**Dering**), and (b) genetic analysis to investigate individual differences in memory (**Donaldson**). To support our multi-methods approach we are also developing computational modelling and data-driven theory building, to make maximal use of the large volumes of data acquired. In this area we are strongly supported by the development of Stirling's capacity in the area of 'Big Data', which is a key part of the long-term Academic Plan of the School of Natural Sciences – in this respect Psychology has the potential to be a vital source of new research directions in our wider School environment.

For maximal effectiveness, we are also prioritising studies that connect different research approaches. For example, combining human and animal work, and also memory and perception, we are developing mobile electroencephalography and location tracking, in combination with eye-tracking. This research allows us to analyse cortical theta as participants move around a building, exploring human analogues of rat spatial navigation – allowing us to compare spatial-coding mechanisms in human and animal navigation and to relate these to visual cues (**Dudchenko, Donaldson and Watt**). Equally, combining social learning with communication and face perception, we are using measures of eye-movement and facial expression to examine the role of non-verbal cues in the transmission of knowledge, and their importance in relation to verbal cues (**Caldwell & Kuipers**). Combining cognitive neuroscience approaches with learning methods used by sports physiologists, we are investigating the processes underlying sports performance (putting and shooting). The convergent analysis of mobile electroencephalography and motion tracking allows us to identify successful pre-shot routines, examining the role of alpha-based inhibition in cognitive control – during real sporting behaviour (**Donaldson & Ietswaart**).

Our strategy is leading us to develop imaginative applications of relatively new mobile computing and sensing devices that have revolutionised our ability to monitor and assess human behaviour during natural activity. We are, as a result, working together on two collective projects that will facilitate real-world psychological science: (1) the 'instrumented person', a suite of methods using wearable technology that allow us to apply experimental methods in real-time outside the lab, including mobile eye-tracking, mobile electromyography and heart rate variability, mobile electroencephalography, mobile motion sensors, location tracking, and remote video capture, each of which can be used singly or in various combinations depending on the research question (**Leads: Donaldson, Dudchenko, Hancock, Ietswaart and Watt**); and (2) the 'instrumented-room' with its own additional fixed computing and sensing devices in a purpose-built dedicated space attached to our in-house playgroup. The fixed location allows the addition of multiple fixed cameras and other remote sensors for full 3-D data about participant behaviour (**Leads: Caldwell, Kuipers, Rafetseder & Watt**). Importantly both of these projects are designed to allow several participants to be measured concurrently – allowing us to pursue fine-grained analysis of natural interactions during social communication and learning.

iii. Building on past success: In concrete terms we have already taken important steps in the delivery of our strategy. Over the current REF period, appointments to the Cognition in Complex Environments Group have all been based on complementing existing methodologies (**Ietswaart, Kuipers, Rafetseder**). In addition the University has funded three early career Impact Fellowships to support our strategy: **Dering** is working on integrating electroencephalography, heart rate variability and video data in the context of a range of cognitive tasks; **Stirrat** is examining the relationship between face perception and social decision making in relation to identity and leadership; **Cornish** is developing further theories of cultural learning. We have also obtained grants to conduct pilot work specifically focused on demonstrating our capacity and capability: for example **Watt** and **Dering** have a British Academy/Leverhulme grant to start work integrating heart rate variability with face-video analysis in the context of natural conversations; **Donaldson** has received funding from the Scottish Institute of Sport to start work examining the cognitive and electroencephalographic basis of sports performance.

Long-term strategic planning occurs through annual School and University planning processes that require business cases to be developed and tested against external research priorities, particularly the major strategic challenges set by research funders. For example, our strategy allows us to respond to national research priorities: analysis of mobile electromyography and heart rate

variability data is allowing us to develop complex measures of health-related food-choice to examine the effectiveness of interventions, and develop novel psychophysiological models of behaviour change (mapped to ESRC - Health & Wellbeing; MRC - Lifestyles Affecting Health; CSO - Public Health). The introduction of mobile electroencephalography is extending Event-Related Potential studies of memory for faces to assess the cognitive and neural differences between familiar and unfamiliar face identification – when recognising people in real life (i.e. not images) (ESRC - Security, Conflict & Justice; Horizon 2020 - Inclusive, Innovative & Secure Societies).

Our currently committed investment is focused on the opportunities provided by developmental psychology, mapped to the ESRC priority of Understanding Individual Behaviour. Stirling is unique within the UK in having its own in-house playgroup, providing us with exceptional opportunities for studying behaviour in freely interacting children. The collective 'instrumented room' project is designed to enhance substantially the utility of the playgroup, capitalising on the methodological expertise of new staff – based on University capital support. Consequently, we are pursing growth in our developmental psychology complement, with two additional staff (Lecture/Senior Lecturer) appointments agreed, building on our existing strength in this area, and making optimal use of this facility. Further continuing investment will also double Psychology's number of University Impact Fellows (three submitted as part of this UoA) to provide additional critical mass in this key research area. Future intended investment set out and embedded within our School strategic planning process focuses on two priorities: i) appointment of an additional Lecturer in the Behaviour and Evolution Research Group to enhance links with Cognition, with particular emphasis on developing expertise in human-animal interactions; and ii) appointment of an additional Lecturer and Senior Lecturer in the Cognition in Complex Environments Group to support development of the instrumented person project, with particular emphasis on developing our expertise in multi-sensory integration – enhancing links between our existing cognition and perception researchers.

Progress towards realising our strategic objectives is monitored via Divisional, School and University review. At University level all strategic plans are reviewed annually by a 'Planning for Academic Success' group which provides stringent testing of research proposals and priorities. At School level on-going research activity is assessed by the Research and Knowledge Exchange Committee, which meets on a monthly basis to review performance against targets. At Division level individual staff are set quantifiable targets for research outputs, PGR supervision and grant income (based on sector comparator data). Operationally, individual research groups provide the local mechanism for delivering our strategy. These operate by weekly meetings, to which all staff from the Division and School are invited, offering external researchers and internal postgraduate researchers opportunities for dissemination and peer engagement. Research meetings are used to actively encourage staff to discuss and develop new ideas/techniques and new collaborations. We also regularly invite colleagues from other institutions, both academic and non-academic, to contribute to these group meetings.

c. People - Staffing strategy: New appointments are designed to fit within and enhance the ability of research groups by increasing the range of methods and theoretical topics available across the entire staff complement, and specifically to facilitate a range of collaborations between staff. We have broadened our range of methodologies by appointing: **Kuipers**, who has an innovative approach to language development, combining eye-tracking and EEG methods; **Ietswaart**, who investigates visuo-spatial imagery and action, bringing expertise in the combination of neuropsychology, neuroimaging and TMS methods; **Roberts,** who investigates the links between olfactory and other sensations and behaviour, with chemosensory expertise. These appointments broaden our coverage of fundamental areas of Cognition and as a result have opened up a rich range of new research. In addition, to utilise fully our playgroup, two appointments have been made over the period in the area of Developmental Psychology (**Kuipers** and **Rafetseder**). These appointments demonstrate that our targeted approach has significantly increased the range of methods available in Psychology and enhanced our potential for inter-disciplinary collaboration.

Staffing strategy in Psychology has also accommodated wider plans to develop synergy between this unit and other related researchers. Our plan enables links to the Health and Behaviour Change group (part of Stirling's Public Health research), which has developed over the period, refocusing towards investigating the key cognitive determinants that govern behaviour change. Similarly, the Behaviour and Evolution Research Group works closely with colleagues in the University's Conservation research group and has had a gradual change in emphasis and direction: long-

standing strength in comparative psychology has been enhanced by hiring staff who use an experimental psychology approach to investigate questions concerning cultural evolution (**Cornish**, 2013) and the biological links between perception and action (**Roberts**, 2010).

Staff development: Stirling operates a 'Best Practice' approach, based on UK/EU Higher Education frameworks, including (i) 'The Concordat to Support Career Development of Researchers'; (ii) 'EURAXESS - Researchers in Motion' and 'The European Charter for Researchers'; and (iii) 'Athena Swan' (charter status, 2011; bronze institutional award, 2013; silver award application now in process) and is fully compliant with the Equality Act 2010. Frameworks motivate real change, such as diversifying committee membership, introducing flexible working, establishing equality champions, and collating baseline data for assessing equality and diversity. Stirling's approach is recognised externally as exemplary (e.g., 'HR Excellence in Research Award' by the European Commission, Vitae Conference, 2011) and forward-looking (e.g., currently planning Athena Swan Departmental applications for 2014). Stirling has also developed its own 'Code of Good Research Practice' setting out local expectations backed by a combination of required training (e.g., Equality and Diversity; Health and Safety; Data Protection) and development opportunity at multiple levels: (i) University career development (e.g., managing people, networking) and skills (e.g., grant writing, media); (ii) School awareness raising (e.g., Athena Swan, REF and Impact; the Concordat; Research Futures); and (iii) Division training in tools (e.g., Research-Professional, Researcher-ID) and methods (e.g., eye-tracking, Qualtrics, heart rate variability), alongside regular Research & Impact meetings. (iv) Externally via a ring-fenced School training budget, allocated for support of research-focused Personal and Professional development (e.g., staff have been provided with Belbin Team Role, 360° and MBTI profiling, as well as attending Leadership Foundation training). Funds are allocated in response to need, to ensure individual staff are able to develop the skills necessary for successful research (adapting to the changing HE environment and the changing nature of their role as they progress).

Psychology also supports staff via mentoring (using a person-centred needs-based approach), including: (i) a named senior colleague provides induction, pastoral and career advice; (ii) probation planning ensures new staff develop appropriate (with ambitious but achievable) research and teaching aims, identify training needs and setting publication and grant targets; (iii) research groups provide intellectual stimulation via journal clubs and visiting speakers, as well as pre-publication peer-review of journal and grant applications; (iv) 'Achieving Success', annual University-wide performance plans, identifying opportunities, challenges, training and resource needs, and monitoring individual progress. Achieving Success is reviewed by Division and School Heads, but peer-to-peer evaluation is built in, inspiring collaborative interaction, guiding junior staff expectations, and encouraging ownership of the process. We also manage demands on staff to protect research time using an explicit School workload model, allowing (a) research time to be balanced against other duties, (b) teaching load to be reduced by 50% for new staff to ensure their research grows quickly and strongly, and (c) Research Leave planning, allowing six months leave every three years (applications must focus on international collaboration, publishing high-quality outputs, and multi-centre grant applications). This combination of approaches has allowed us to develop an outstanding atmosphere of enthusiasm and dynamism, with a large subset of new and early-career research staff supported by and integrated with senior colleagues. Psychology also provides targeted financial support for research. Staff are eligible for annual funds to cover travel and other research expenses provided they have made an external grant application >£50K in-year; staff with grants are allowed to request additional support (up to 10% of any incoming FEC overheads). A separate Equipment Fund is distributed via an internal bidding process.

Research students: We regard Research Post-Graduate students (RPGs) as integral to our research culture and future and have acted to sustain numbers. Over the 2008-2013 period our RPG cohort has ranged from 19.1 to 26.6 per year, with a high 97% four-year completion rate. Our approach to RPGs is multi-faceted:

Funding and recruitment: (a) Psychology uses its non-staff budget to fund RPGs (average 2 FTEs per year in period). Awards are made competitively, via a process that requires candidates to seek external funding - attracting high-quality applicants and successfully leveraging external funds (e.g., ESRC CASE awards, Carnegie, Scottish Chief Scientist Office, ORS, HEA, Leverhulme, Charities). Successful external bids result in re-allocation of awards and increase our total RPG intake; (b) We have built links with external partners to attract match funding. For example, three

BBSRC CASE awards with partners at Unilever, AstraZeneca and Covance. The University has supported University Impact Studentships in Psychology, and a new University scheme offers matched RPG awards, encouraging industrial, commercial or charitable partnerships, reinforcing the strategic importance of this approach; (c) We have develop our MSc base so that RPG talent can be identified and developed, extending an MSc in Research Methods, introducing complimentary topic-focused MScs (Child Development, Evolutionary Psychology, Faces, Perception, Autism) and funding MSc Bursaries (six at £1K per year).

Training and Support: Our RPG students are provided with extensive training, guided by Vitae's Every Research Counts and Researcher Development Framework agendas, the employability agenda set out by the University of Stirling (2011) and Scottish Government imperatives on employability (2012). A range of formal training is provided for RPGs, including (a) Psychological Research Methods MSc classes (quantitative methods, qualitative methods, and key skills for psychologists modules); (b) SUPPORT meetings (a Scotland-wide Psychology methods training network); (c) Stirling Graduate School courses and events: Training is themed around Employability and Careers, IT, Learning and Teaching, Research Skills, and events include an annual RPG conference; and (d) topic-specific training networks (e.g., SINAPSE pooling RPG induction and training; Scottish Primate Research Group training and meetings).

Facilities: Ethos and Environment: We encourage an active research environment by including RPGs in all research group meetings, having workshops, oral presentations and poster competitions. We organise a variety of dedicated PG events (networking, peer lunches) within Psychology with a positive, celebratory sense. Psychology RPGs have staff-level access to all research facilities and support, which includes 6 FTE administrative and 4 FTE technical staff in Psychology, plus additional School support staff. RPGs are awarded a Personal Research Fund (£1K or funder amount) provided they also make external applications to cover research costs, including travel. We actively encourage RPGs to engage with and visit our external collaborators, utilising our International networks to full effect.

Supervision: Supervision is through supervisory teams involving a minimum of two supervisors with annual progress appraisals conducted by the PG Committee Chair and Director of Research. In line with University-wide regulations, there are monthly supervisor meetings (co-recorded via an on-line log). Within Psychology the PG Committee allows formal staff-student consultation, responding to general PG needs or concerns, while a PG Tutor provides pastoral care and support. Student progression is monitored and governed via Stirling Graduate School and Psychology requires an additional 1st Year assessment, including a mini-viva to discuss a draft publication modelled on a PhD relevant paper. Our aim is to encourage high-quality publishing at RPG level, with students submitting their first paper in the 2nd year, to ensure that by the time of submission one or more papers is already in process at an international journal. Psychology RPGs all present their research internally (Psychology, Graduate School) and externally (national, International) by the end of year two.

d. Income, infrastructure and facilities: The total income for the unit in the REF period is £3.3 million. Grant income has improved substantially over the REF period: the figure represents £233K per staff FTE submitted, compared to £99K per FTE in RAE2008. This income increase has been achieved by communicating clearer expectations and aspirations to staff, by building funding application planning into Achieving Success, more mentoring of junior staff by experienced colleagues in research groupings, and through diversification of our target funders – basic research has been supported by SFC, BBSRC, ESRC, EPSRC, Nuffield, Royal Society, Leverhulme, Wellcome, BA, HFSP and EU, and applied research by TSB, charities such as IFAW, UFAW, MRC, CSO, Joseph Rowntree Foundation, NHS, and NIHR.

Psychology has several well established labs that provide high-specification research facilities:

➢ Faces Lab: 2-D and 3-D photography suites, image processing facilities including in-house software and tools. The lab also hosts an ESRC-funded database of face images which are made available to face researchers via a website (pics.stir.ac.uk).

➢ Health Lab: housing physiological and neuropsychological testing equipment (motion sensing; walking track; heart rate variability, Cantab) for studying physical activity, pain perception, etc.

➢ Perception Lab: psychophysics equipment, including black-out space, dedicated display technology, high precision photometry, Wheatstone stereoscopes.

- ➢ Psychological Imaging Lab: an electroencephalography suite housing three 64 channel recording chambers, data processing and analysis PCs, 3D-digitization and wet-prep space.
- ➢ Psychology Playgroup: a fully operational public nursery (34 children aged 3 to 5; plus parent-toddler group), supported by two core staff, and funded/managed by Psychology) including video/audio monitoring, adjacent testing space and one-way observation mirrors.

Our focus on infrastructure development reflects our real-world measurement strategy. We also regularly upgrade facilities to ensure space meets or exceeds the highest standards within the sector on the basis that better measurement means better science. In the REF period we have: (i) added humidity and temperature control to the electroencephalography suite as well as increased capacity for recording; (ii) enhanced the Perception Lab by adding full black-out capabilities and high-precision displays for use with EEG; (iii) upgraded Playgroup facilities with digital camcorders, and digital sound recording via mobile head-mounted microphones; (iv) invested in advanced video techniques, developing both a 3-D camera system and a bi-directional video system for direct full-face video recording of two people engaged in a conversation; and (v) developed a child-specific eye-tracking suite adjacent to the playgroup. Our physical infrastructure is regularly remodelled according to need, building bespoke space for incoming researchers: most recently we have invested in (a) a new eye-tracking lab, introducing eye-tracking into the EEG lab, and purchasing mobile eye-tracking for our 'instrumented person' project; (c) a new motor-action lab including locomotor assessment for disability research and new neurostimulation equipment (Transcranial Direct Current Stimulation and Transcranial Magnetic Stimulation); and (d) mobile psychophysiological equipment for heart rate variability and galvanic skin responses, for monitoring cardiac output, blood pressure and peripheral resistance in action, with in-house software that allows time-based and event-locked spectral analysis of heart rate variability data.

Psychology funds a range of (i) software (e.g., ePrime, Matlab, Observer, DirectRT, Inquisit, Portapress, Biopac, Actiwatch, Actiheart, Spacelab, etc.); (ii) a growing library of Psychology tests (currently 190); and (iii) on-line tools (e.g., Qualtrics survey builder; an Experiment Sign-Up and Credit system). Research is supported by dedicated Psychology technicians (4 FTE) including computing hardware and software, electronics and audio-video expertise, programming and data analysis, 'black-box' timing audits. Our team provides outstanding levels of support, researching, purchasing and fixing equipment, creating bespoke equipment (e.g. mazes, button boxes, etc.), developing in-house software and maintaining all lab space. The School of Natural Sciences also provides access to infrastructure, methods and expertise, notably: (a) Maths provides a dedicated statistics service, facilitating development of new methods of data analysis, e.g. items analysis and errors in variables; (b) Computer Science provides substantially enhanced data management, storage, and computational modelling, particularly around the 'Big Data' requirements associated with understanding complex systems; and (c) Biological & Environmental Sciences provides new analytical methods, including genetics and environmental mapping (GIS) techniques.

We also support and fund access to a range of external facilities, as needed, including (i) access to the Memory and Space Lab (Centre for Cognitive and Neural Systems, Uni. Edinburgh, via a formal facilities agreement) which houses animal research including behavioural and single-unit electrophysiological recording, plus associated small animal surgery and histology; (ii) access to imaging methods including fMRI via SINAPSE (an SFC pooling initiative also involving Aberdeen, Dundee, Edinburgh, Glasgow, St Andrews); (iv) access to saliva sampling, storage and DNA analysis via the Wellcome Trust Genotyping Laboratory, Uni. Edinburgh.

Research governance complies with Best Practice set out by University, School and Divisional policies, and external bodies (BPS Code of Conduct, NHS, Research Councils, and ERC guidelines; induction training is provided for all staff). All projects must pass internal Ethics (Psychology Ethics Committee, which includes lay membership and reports directly to a University Ethics Committee) and external Ethics as necessary (e.g., NHS, LEA). Risk Assessment is required for off-site projects, audited via University Health and Safety returns, plus annual and 5-yearly Review. We take data management and storage obligations seriously, and either submit data to public repositories or make it available on request (as per RCUK requirements). We provide all staff with lockable filing, and/or redundancy-protected digital storage and back-up (as required) and compliance with Data Protection Legislation is obligatory (monitored via Ethics). Stirling is a HE-leader for Open Access, with one of the first UK repositories (STORRE) within which all PhD theses and research outputs are archived for open access.

e. Collaboration and contribution to the discipline or research base:

Staff in the unit collaborate with over 100 different institutions (based on published collaborations in REF period, excluding new or not-yet-published work), with 60% involving overseas institutions, extending throughout Europe and USA, and also involving Australia, South Africa, Singapore, Canada, Japan, and China. In addition, our industrial collaborators include NASA Jet Propulsion Laboratory (USA), Janssen Pharmaceutical Companies of Johnson & Johnson, Unilever Research and Development Port Sunlight Laboratory. Within the public sector, we have collaborations with Devon & Cornwall Police, Lancashire Constabulary, Forensic Department of Iasi County Police Inspectorate, Aberdeen HM Prison Peterhead. We also have collaborations with the NHS (including Edinburgh Royal Infirmary, Newcastle General Hospital, Stratheden Hospital, Grampian University Hospital Trust, Queen Elizabeth Hospital, Gateshead). We value the contribution our staff make to the wider discipline and encourage it by including collaborations in the School workload model. We also support frequent research visits by our staff to external collaborators, and support incoming visits by external academics. We have also deliberately built new links with colleagues across Stirling and externally that can provide us with enhanced inter-disciplinary opportunities, including access to potential non-academic stakeholders.

All submitted staff are members of, and contribute to, academic societies, as well as contributing to peer review of both grants and papers, including 14 journal Editorships and Associate Editorships. Staff are regularly involved in presenting at national and international conferences and workshops (including invited presentations and key note addresses, as well as involvement in private research meetings), including regularly organising and hosting meetings at Stirling. We actively encourage this contribution to the discipline by allocating Divisional financial support for a number of locally founded groups that regularly host researchers from across the UK at meetings in Stirling: Scottish Vision Group (founded by **Watt**), Cognitive Electrophysiology UK (**Donaldson**), Scottish Faces Research Group (**Hancock**), Scottish Psychology and Evolution Research Network (**Caldwell, Roberts**). We also encourage staff to serve on advisory panels/boards to contribute to policy and practice within the wider discipline, for example **Anderson** is a scientific advisor for the Primate Centre of Strasbourg University; **Donaldson** sits on the Steering Committee of the Scotland and Northern Ireland HUB of Vitae, planning Personal and Professional Development events.

Other recent prominent contributions made by staff from this UoA include: **Dudchenko** was Topic Editor for a special issue (Spatial Memory: A Unique Window Into Healthy And Pathological Ageing) for *Frontiers in Ageing Neuroscience* (2012); **Hancock** is a member of the ESRC Virtual College (2008-); **Roberts** is a trustee (and vice-president elect) of International Society for Human Ethology, and was awarded the British Academy Mid-Career Fellowship (2013-14); was a Guest Editor for a special issue (Evolutionary Psychology In The Modern World: Applications, Perspectives And Strategies) for *Evolutionary Psychology* (2012); **Ietswaart** is a member of the Evaluation Panel for the EU's Human Brain Project; and was Co-Editor for a Hot Topic special issue (Mental Practice: Clinical And Experimental Research In Imagery And Action Observation) for *Frontiers in Human Neuroscience* (2013); **Caldwell** is a member of ESRC Virtual College (2010); was elected to the Young Academy of the Royal Society of Edinburgh (2013), and with collaborators from St Andrews, Edinburgh and Cambridge, has also made substantial contribution to public understanding of science: her "Culture Evolves!" exhibit was one of just 26 chosen on the basis of scientific excellence from 160 bids submitted to the Royal Society Summer Science Exhibition (2010), and has now also been presented at the Dundee Science Festival (2010), Royal Society of Edinburgh Best of Scottish Science event (2012), and the British Science Festival (2012); **Donaldson** was elected to the Executive Committee of the Association of Heads of Psychology Departments (2013); sits on BBSRC Animal Sciences Committee A (2010-11 Pool; 2012- Core); developed 'The Learning Process' with Goldsworthy Consulting Ltd, meta-cognitive training for RPGs, finalist for a Times Higher Award for 'Outstanding Support for Early Career Researchers' (2008); was invited facilitator at the Scottish Launch of the Concordat for Researchers (Edinburgh, 2009); is a PI for SINAPSE, a £5Million SFC Pooling Initiative (2008-14) in imaging and sits on Management and Executive boards, and Chaired PG Committee (2008-10); is an honorary member of BPS Scotland Branch Committee, and a member of the BPS Impact Peer Review Panel (2013); **Watt** held a Leverhulme Research Fellowship, and is a member of the Medical Sciences and Cognitive Sciences Sectional Panel for the Royal Society of Edinburgh.