Annual Report, Year 4 2018-19

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EXECUTIVE SUMMARY (and main expenditure):
- 8 seed grants awarded, with PIs across 4 departments: $163K
- 6 IBRAiN fellows $116K
- 16 Graduate fellowships awarded, across 6 departments: $58K
- 16 Undergraduate fellowships awarded, across 3 departments: $25K
- 35 External grant applications (see Section 5) directly supported by IBACS, totaling $22.6M. $8.6M awarded so far, $8.6M pending
- Laboratory and group support (through direct funding, admin support, or funded GAs): Brain Imaging Research Center (BIRC), Murine Behavioral Neurogenetics Facility (MBNF); Cognitive Science Shared Electrophysiology Laboratories (CSSERL); Expression, Communication and Origin of Meaning group (ECOM)
- Workshop support: 9 sponsored workshops/meetings/conferences, including: IBACS 2-day annual Meet-and-Speak + Community Engagement in Deafness and Autism Research (CEDAR)
2. INSTITUTE MISSION

The mission of the Connecticut Institute for the Brain and Cognitive Sciences (CT IBACS) is to serve as both a beacon and incubator for research across the brain and cognitive sciences at UConn and beyond; promoting and supporting the interdisciplinary science of the mind and its realization in biological and artificial systems. It will enable new research and educational opportunities for graduate students, postdoctoral researchers, and faculty to extend their intellectual reach beyond traditional disciplinary boundaries, as well as enabling undergraduates to receive laboratory-based training in neuroscientific, behavioral, and theoretical research in the brain and cognitive sciences. It aims to provide the physical, financial, administrative, technical, intellectual, and educational infrastructure to enable UConn’s extensive but distributed neuroscience and cognitive science community to realize its full potential for disciplinary and interdisciplinary innovation in the brain and cognitive sciences. The Institute was founded July 1st 2015, as a part of the University’s Academic Plan.

3. GOVERNANCE

The Institute is managed by a Director (Altmann, Psych Sciences) and two Associate Directors (Magnuson, Psych Sciences; Chamberlain, UConn Health). They meet with an Executive Committee of 10 other faculty drawn from 7 different departments (including Neuroscience at UConn Health, Farmington). The executive meets in person three times per year, although day-to-day issues are brought to their attention, and advice sought, via ad-hoc emails throughout the year. The Director and Associate Directors meet each week during the semesters, and occasionally during the summer break.

A UConn-internal Advisory Board meets twice a year, advising on shorter- and longer-term issues of strategic importance, in respect of both Institute-internal matters and issues that may impact externally on the Institute. Throughout the year we solicit and receive advice from CLAS, the Offices of the Provost and the Vice President for Research, as well as the heads of the various departments we interact with (with particular support from Psychological Sciences).

4. INSTITUTE ACTIVITIES 2018/19

1. Seed grants: The Institute had two calls for seed grants (November 2018 and May 2019). We received 14 applications in total, of which 8 have been funded (approx. $163K). We received more letters of intent than applications, but on 5 occasions we advised against proceeding to a full proposal (the applications did not fit sufficiently well with the Institute’s mission). A further 9 seed grants ($134K) which had been applied for in May 2018 were funded since the writing of the previous Annual Report. All applications were reviewed by at least three reviewers drawn from the IBACS community. We avoid reviewers who are themselves applicants in the same round, although occasionally we will solicit advice from someone in this position, noting the conflict of interest. Overall, 6 out of 14 applications could be considered “cognitive”, although the dollar amounts awarded are more evenly split between cognitive/behavioral and bench or animal neuroscience grants. We continue to monitor this closely. All awards are described on the IBACS website (ibacs.uconn.edu/research/). A condition of award of a seed grant is that, in the event of a successful outcome (e.g. data suitable for publication or inclusion as pilot data in a grant) the PI will submit an application for external funding. We track and follow-up each funded grant to ensure this condition is met. Total amount awarded in AY/FY 18/19: $163,408. See Appendix 2. Comparative data on seed grant expenditure across Years 1 to 4 of the Institute are shown below:
2. **Graduate Fellowships**: These pay up to $5,000 in summer funding to graduate students. A condition of award is that students apply for a pre- or post-doctoral award (e.g. NRSA or GRF) in the Fall. To this end, recipients take a 3-day grant-writing workshop hosted by the Institute (with various assignments across a 2-month period). This year was the 4th year of the workshop. For non-US citizens who are not eligible to apply for federal predoctoral awards, their advisor had to commit to writing an application for external funding. We follow-up on each fellowship both to encourage and monitor such applications (see below for 2018 metrics). This year (Summer 2019), we funded **16 students, at a cost of $58,000**. An additional $13K will be spent in FY20 to 3 grad students whose fellowships are deferred to summer 2020. Each student receives $4K upfront and $1K on submission of their external fellowship application: $13K has been reserved for Fall ‘19 grant submissions ($8K was spent on Summer ’18 grant submissions). Funding decisions were made by a committee comprising the Director and Associate Directors (COIs were avoided by ensuring that no advisor scored their own student, and conflicts were registered and explicitly considered by non-conflicted members). We follow-up with each student and advisor to monitor progress on applications. See Appendix 3. In 2020 we shall reduce the number of fellowships to make them more competitive (see Section 6: Going Forward).

3. **Undergraduate Fellowships**. The undergraduate fellowship program ran for a third year, managed by John Salamone, in conjunction with the Office of Undergraduate Research. The fellowships allow a student to work in an Institute affiliate’s lab and provide up to $1,000 research expenses for semester fellowships, and a combination of $1,500 research expenses and $3,500 stipend for summer fellowships. We funded 12 semester and 3 summer fellowships in 2018/19 at a total cost of $25,470. See Appendix 4.

4. **IBRAiN Program**: 2018/19 was the second year of this program. This is a Research Assistantship paying six graduate students a stipend for 10 hours’ assistance per week in BIRC (“IBRAiN” = “IBACS-BIRC Research Assistantships in Neuroimaging”). IBRAiN students are trained to assist with, and are themselves trained in, advanced specialized knowledge currently lacking in the labs of PIs who have sufficient knowledge to conceive of appropriate imaging studies but do not have the expertise to actually run a study and analyze the data. Each IBRAiN student receives a summer fellowship ($5,000), as well as MRI scan time, to work on their own neuroimaging project. The total cost of the program is approximately $116,000. A summary report is included in Appendix 5.

5. **Other Research Support during the past year (July 2018 – June 2019)**:  
   a. **Murine Behavioral Neurogenetics Facility** (MBNF): In June 2018, MBNF became a subsidiary facility under the governance of IBACS. MBNF is managed by the current Director, Dr. Fitch. It was originally a Tier 2 facility funded by the University’s Academic Plan. This year, we provided
a block grant of $40K to MBNF to support Institute-funded and affiliated research with mouse models (linking cognitive behavior to neuroscience and genetics). A summary report and financial breakdown is included in Appendix 6C.

b. **Cognitive Science Shared Electrophysiology Labs (CSSERL):** Lab manager (20 GA hours per week). CSSERL supports the electrophysiological (EEG) research of faculty in SLHS, Linguistics, BME, HDFS and Psychological Sciences. A summary report is included in Appendix 6B.

c. **IBACS Lab Manager:** Dr. Joergensen (the Director’s lab manager / postdoc) is paid 2/3 by IBACS and 1/3 by Yee Lab. Aside from managing both the Yee Lab and the Altmann Lab, she also supports a number of collaborative projects under the auspices of IBACS. These are summarized in Appendix 6E.

d. **Brain Imaging Research Center (BIRC).** Dr. Joergensen also spends approximately 5 hours per week, depending on the ‘demand’, on BIRC-related activities during the year, developing, maintaining, and helping write scripts for, the in-scanner eye-tracking system. She also helps with EEG and works closely with the MR Techs on development and maintenance of other fMRI-based projects.

e. **Center on Aging, UConn Health.** IBACS and InCHIP together support a research project on lower urinary tract symptoms (specifically, “bladder urgency”) and cognitive modulation of the experience of urgency. This project is a collaboration between IBACS and the Center on Aging and The Institute for Collaboration on Health, Intervention, and Policy (InCHIP). This paid one $10K fellowship ($5K from each Institute) in each of 2017/18 and 2018/19 to a student on the Masters in Public Health. A hypothesis paper is currently in preparation for publication (co-authors: Nina Franzen and Phillip Smith).

6. **Group Support during the past year (July 2018 – June 2019):**
   a. **Expression, Communication, and the Origins of Meaning (ECOM) Research Group** ($5,000). To support organization of the ECOM Spring Workshop and their speaker series. A summary of ECOM activities is included as Appendix 6D.
   b. **Cognitive Science Program.** IBACS provides administrative assistance for the undergraduate program (including managing meetings, the website, etc.). The Institute also provides financial assistance for jointly organized visiting speakers.
   c. **UCONN K.I.D.S.** This year, IBACS supported UCONN K.I.D.S. through continued support for the UConn server.

7. **Workshop support.** The Institute supported 9 workshops/conferences:-Neuroscience at Storrs; LangFest; the InCHIP Lecture Series; Graduate Fellowship Grant Writing and the IBACS Meet & Speak. The Institute also supported several externally sponsored workshops such as the Statistical Learning Workshop; Community Engagement in Deafness and Autism Research (CEDAR); the Science of Understanding workshop and MikeFest, **Total outlay: $39,097.**

8. **Annual “Meet-and-Speak”.** IBACS held a 2-day meeting with 14 faculty talks from both Storrs and UConn Health (predominately recipients of IBACS seed grants), as well as 10 presentations from Graduate Students (2018 IBACS Summer Fellows and IBRAiN students). The meeting included a film series on the first evening and an external keynote speaker on the second evening. See Appendix 8 for the program and also feedback that was solicited after the event.

9. **IBACS partnered with UConn Health** (Prof. David Steffens) to organize a **Brain Symposium** in June 2018 that brought together researchers from UConn Health in Farmington and UConn in Storrs. The symposium, intended to facilitate new collaborations, took place in Hartford, with 28 members of the Storrs community in attendance. A second such symposium will take place in October 2019.

10. **IBACS External Application Review.** This internal review process continues to be organized by a small interdisciplinary group led by Jim Magnuson, and tasked with helping UConn investigators
develop high quality grant proposals by offering a mechanism for “mock review” of in-development proposals, and facilitating mentoring in grant writing.

11. Outreach and related activities.

- The Institute published its third Research Digest edited by graduate students (Hannah Morrow & Sahil Luthra). This is similar to a “glossy brochure” and focused on neural plasticity. 200 hard copies were requested by a member of the state legislature, and copies were also provided to the UConn KIDS Research Recruitment Coordinator and were also made accessible across the Storrs campus. The fourth Digest is on pause while we find new graduate student editor volunteers. The Digests are available on the Institute website.

- The Institute has identified Advanced Placement Psychology Instructors at high schools across Connecticut, and has created a listserv in which to share information with them such as the Brain Digest, advertisements of upcoming talks/colloquia, and recorded videos of colloquia of interest.

- IBACS has recently coordinated its second BIRC fieldtrip with high school students studying Advanced Placement Psychology. Students from E.O. Smith visited the Brain Imaging Research Center in May and were given tours of the MRI, EEG and TDCS facilities, accompanied by talks given by the IBRAIN students and BIRC’s Associate Director, Roeland Hancock.

- The Institute sponsored a talk by Dr. Tim Miller, from Digital Media and Design, who produced six short scripted films (2-3 minutes each) describing the research of six members of the Institute. These films were premiered at this year’s Meet & Speak event, May 14th. They will shortly be released on YouTube (with links on the Institute website). IBACS plans to continue its partnership with UConn Digital Media and Design to create more of these short films.

- The Institute uses its website to celebrate the successes of the affiliated research community by placing various “spotlights” on the homepage that highlight and describe the activities of select faculty and student (graduate and undergraduate) Fellows.

12. Affiliate membership. The Institute has a total of 242 affiliates. Excluding the Director, 2 Associate Directors, and 9 Executive Committee members, we have 111 affiliated faculty and 119 affiliated graduate students from across 34 UConn departments. All are listed on the Institute website (photograph, research description). Affiliation is dependent on demonstrating research expertise relevant to the research mission of the Institute. We anticipate growing this number each year. Affiliation is a pre-requisite for applying for financial support from IBACS and enables us to track the impact of that support (see Sections 5 and 6).
13. **Administrative support.** In October 2018, Crystal Mastrangelo joined us as our new full-time administrative assistant (our previous assistant left in July 2018 for a position at UConn Health). This position had previously been supported 25% by Psychological Sciences; this year IBACS assumed 100% of the cost. This position also provides support to the Cognitive Science undergraduate program (admin support and website management). As the administrative assistant, Crystal ensures that all the activities that have an annual cycle (seed grants, fellowships, Research Digest, etc) proceed to time, ensures that we know our budgetary situation on a weekly basis, and keeps the website and various databases (including those containing performance metrics) up to date. Crystal also manages our annual Meet-and-Speak, as well as various other activities throughout the year (including the workshops we support). She also provides support to the Director in respect of his other administrative duties within Psychological Sciences. Crystal’s oversight of the Institute’s finances identified vulnerabilities that we are now better prepared for (see Section 6: Going Forward).

14. **Space.** The Institute’s physical focus consists of lab space in Arjona allocated by their respective departments to PIs Altmann, Hancock, Large, Magnuson, Yee (all Psychological Sciences), and Sprouse (Linguistics), and used also for teaching (the SLAC and Neurobiology of Language graduate programs). When The Office of Veterans Affairs and Military Programs moved from Arjona to the Hawley Armory, we were able to take over the kitchen/lounge area they had been using, as well as one of their meeting rooms. CLAS provided funds to purchase chairs for the meeting room and two large monitors, one for each of these rooms. These are now used on a regular basis, and the kitchen/lounge area has helped create a more vibrant (and caffeine-rich) environment in Arjona.

15. **Educational Playcare Fellowship.** This fellowship provides up to 20 weeks of free, full-time daycare to IBACS-affiliated students, to be used within the first year of their child’s life. It is intended to support students who become new parents during their graduate studies, and to facilitate their return to their studies/research. Two fellowships are available each year. The fellowships are made available through a generous gift from Educational Playcare. The first fellowship was awarded in April 2019. It consists of 10 weeks’ free daycare provided by Educational Playcare, and a further 10 weeks of childcare paid for by IBACS (max. annual cost to IBACS: $6,400).


The Institute’s impact is twofold: in respect of the research ethos it is stimulating and in respect of more tangible outputs such as grant applications and publications. One of the core missions of the Institute is to foster new collaborative research initiatives, through facilitating dialog across traditional disciplinary boundaries. This is accomplished through activities such as the Meet-and-Speak, as well as through support of research groups that are themselves fostering such cross-disciplinary dialog. This contribution of the Institute to the University’s research ethos is critical, and a primary motivation for the founding and continued operation of the Institute. However, because it is less quantifiable than the Institute’s contribution to grant activity and publication and other outputs, we focus in this section on the latter, detailing metrics concerning grant activity, and publications. This year, we have rolled out a new web-based portal for affiliates to enter information about the IBACS support they have received or made use of, grant applications submitted, and scholarly products output. The portal was developed in conjunction with Jason Card at ITS. It will be made available to other Institutes and Centers for their own use once it has been fully debugged and lessons learned from this first year of use. *Collecting metrics is imprecise, although we ensured that all faculty/graduate students who received funding responded and entered the requested information. All figures reported below are likely to under-estimate the true figures* (see Section 6).
Since Inception: Since the Institute was founded in 2015, it has supported 96 different faculty through seed grants, and their graduate and undergraduate students. The Institute has supported 81 graduate and 39 undergraduate students through fellowships. IBACS has spent approximately $539k on student fellowships (e.g. IBRAiN program, Graduate RAs, graduate and undergraduate research fellowships), $814k on seed funding and $575k on group support. These total approximately $1.96 million.

Grant Activity FY18/19: We solicited from all Institute affiliates details of any grant submitted externally in this reporting period which had been directly supported by IBACS seed funding (affiliates were told that “IBACS support includes: use of EEG/tDCS Lab (BIRC), seed grant funding, support from an IBRAiN Fellow or IBACS Grad/Undergrad Fellow, use of the CSSERL lab or Murine Facility, or use of IBACS External Application Review service (EAR)

- Directly supported grants applied for: 35 grants totaling $22.6M (up from 22 grants and $18.3M last year)
- Directly supported grants awarded: 8 grants totaling $8.6M; indirects $1.1M (up from 5 grants and $5.6M last year; indirects down from $1.5M)
- Directly supported grants still pending: 15 grants totaling approx. $8.6M; indirects $1.5M (up from 8 grants, up from $7.6M; indirects unchanged at $1.5M)
- $ hit rate (dollars awarded as percent of dollars applied for): 38% (up from 30% last year)
- grant hit rate (# grants awarded as percent of # grants applied for): 23% (equal to 23% last year)

The bottom line: The total Institute expenditure (incl. summer commitments) in this same period, for comparison against the $8.6M total and $1.1M indirects awarded so far, was $637K.

Directly Supported External Grant Applications
Year 4 2018/19

$5,423,000
$8,566,000
$8,570,000
awarded pending declined

1 These numbers include 7 extramural graduate student applications (and see Note 2).
2 Graduate student applications account for 1% of the total grant income directly supported by IBACS.
3 Without grad fellows: $ hit rate is 43% and the grant hit rate is 20%.

Last year (Annual Report #3, 2017–2018) we did not include extramural graduate student fellowship applications in the corresponding figures, and the figures here excluding these applications, in Notes 1 and 2, are to allow for comparison against last year.
Publications and other output: In Appendix 7 we list publications by Institute affiliates in two categories – Directly supported and indirectly supported. Institute affiliates were given the following guidance: if the Institute had funded work that was described or referred to in the published work, or had funded work that led, one way or another, to the published work, then that constituted “direct support”. There were 24 such articles (18 published, 6 under review) identified for the period 7/1/18–6/30/19, and 19 conference presentations. If the work had been “inspired” by IBACS-related activities or the ethos that has been generated since the inception of the Institute, then that would constitute “indirect support” (49 manuscripts – 31 published or in press) and 16 conference proceedings). For various reasons (including the proximity to the end of the semester when we requested this information and a June 5th grant deadline) not all affiliates (and specifically, not all those who were funded through the seed grant or fellowship mechanisms) responded in time to be included in this report (see Section 6: Going Forward).

We reported last year that we would start publishing metrics using a two-year sliding window, rather than reporting a single year’s worth of metrics each year. This two-year ‘window’ is a common method to ensure that, across successive years, all appropriate publications are counted. We decided to delay implementation until the new metric portal was functional, and thus next year will be the first year we shall report metrics using a 2-year window. Our new Data Collection portal, used this year for the first time, pre-populates the online data collection form with the previous year’s data (and makes previous years available for query).

Use of Resources Supported by IBACS: The figures below demonstrate the use of resources directly supported by the Institute, July 1st, 2018 to June 30th, 2019. The first figure shows the percentage of respondents who used our resources in their research overall. The second figure shows the percent usage of each resource for directly supported grant applications. The third figure shows the percent usage of each resource for directly supported scholarly outputs.
6. GOING FORWARD: CHALLENGES

Each year there are new challenges, some unforeseen, and some that are constant:

- **Continued Funding:** The Institute has a commitment for continued funding through FY 20/21 from the offices of: the Provost, the Vice President for Research, the School of Medicine, and the College of Liberal Arts and Sciences. Going forward, a major challenge will be to determine the Institute’s funding model beyond FY21. We have identified a number of activities that might generate direct revenue, and these have been discussed at both the Executive and Advisory boards. During summer 2019 we shall convene a number of small committees to evaluate the feasibility and market for a Summer School, aimed at students, including high school students, and professionals. We anticipate entering into discussions with the Provost’s Office during FY 19/20, at our 5-year mark and as part of a 5-year review.

- **Projected Shortfall:** In FY 17/18 we agreed with the Executive and the CLAS Finance Director to roll over saved funds to cover core staff costs in the subsequent year, intending to do the same each year (providing a 1-year cushion in the event of the Institute being wound down—a reaction against a period of budgetary uncertainty at the end of Year 3). Core staff consist of the administrative assistant, two thirds of the Director’s lab manager who also serves BIRC, and the IBRAIN program (6 GAs). For a number of reasons, including the reduction in contribution to admin costs from Psychological Sciences, we were projected to have a roughly $70K shortfall this financial year, which would accumulate each subsequent year. We have made up the shortfall this year through operational savings that have not impacted on our core activities. Next financial year (FY19/20) we shall roll over (into FY20/21) costs for just the administrative assistant and the lab manager. This will generate a one-time saving (and given the timing of our annual cycle we can still ‘protect’ the IBRAIN program for an additional year if necessary). Nonetheless, we project a shortfall of approximately $77K by the end of FY20/21 (Year 6) at current rates of expenditure, assuming no core costs roll-over into FY21/22 (this shortfall is equivalent to 2% of the total 6 yrs’ worth of budget). We note that stipend and fringe costs have increased, as has our contribution to the MBNF and to the costs of administrative support, and that our annual operating budget has been unchanged since FY15/16.

- **MBNF:** In FY18/19 the Institute took over the fiscal management of the MBNF, and the lab manager position associated with this facility was covered by Institute funds and rollover of funds from the MBNF when they came into IBACS. In FY19/20 and beyond we shall not have the benefit of that rollover, although we are mitigating the costs somewhat by converting the lab manager position to a graduate assistantship. The challenge will be to keep the additional costs within our operating budget. We believe that the benefits of diverting funds towards the MBNF and what might be termed (animal) cognitive neurogenetics will outweigh the costs—the dividends are already apparent, as described in the MBNF report in Appendix 6C.

- **Graduate Fellowship Applications:** In the Summer 2018 graduate fellowship cohort, only 47% submitted an external grant application. This has led to the decision to reduce the number of fellowships by 50% (8 fellowships instead of 16), thus making the program more competitive. We shall give U.S. citizens $2k upfront and then another $3k once the external grant application is in submittable form (to be signed off by the advisor). This will offer more of an incentive for the students to submit an external grant application (currently, U.S. citizens receive $4k and then another $1k when an external application is submitted).
• **Unspent Seed Monies:** Ten percent of the total seed money awarded remains unspent in the seed accounts. We shall monitor how seed money is spent more closely, now that Crystal is the fiscal officer on all accounts. We will be stricter when extensions are asked for and will be monitoring large purchases to ensure they were accounted for in the PIs original budget justification.

• **Collecting Data Metrics:** Forty-six percent of our affiliates submitted information during our data collection exercise. We believe that the majority thought it was unnecessary to do so unless they had received direct support from the Institute this past year. We shall continue to monitor the low return rate. In addition, some users of IBACS facilities at BIRC/CSSELR/MBNF may have been unaware that their work is supported by us (one does not need direct funding from us to use these facilities). We used information about seed grant co-PIs, student advisors, and information on their users provided by BIRC/CSSELR/MBNF to identify directly-supported users who did not self-identify as such, and followed-up with individual emails requesting they provide the requested grants and outputs information at our online portal. In fact, 11% of respondents (13 individuals) were not official IBACS affiliates. While this number is relatively low, we shall require, going forward, that all people who receive direct support from us (fellows, advisors, PIs) affiliate before funds are transferred (currently PIs, but not co-PIs, and fellowship applicants but not their advisors, had to be affiliated in order to apply). Affiliation allows us to more easily keep track of who should be returning metric information to us. Notwithstanding the challenge that this kind of data collection presents, we believe that all members of the UConn community who received direct support from IBACS did submit information about grants and scholarly output.

• **Film Series Project:** (See 4.11 above, and Case Study #2 below). Unfortunately, Tim Miller from the department of Digital Media and Design will be leaving UConn shortly. The Director has been in communication with the Department Head, Heather Elliott-Famularo, who is eager to continue this collaboration.

• **Space:** We have been fortunate to receive investment through CLAS for furnishing two additional meeting rooms in Arjona, to complement the laboratory and teaching space already used there by PIs Altmann, Hancock, Large, Magnuson, Sprouse, Yee, and the SLAC and NBL graduate programs. We believe that the current activities continue to be a necessary first step towards building an environment in which a physical Institute could take shape, and we shall continue to work towards this long-term goal. We have started discussion on what such a goal would entail, and this may be contingent on new paths to revenue generation that are currently under consideration. While the Institute does now have an identity at UConn, having a physical focus that is specific to the Institute remains a longer-term goal, and the options for revenue generation that are under consideration may usefully impact on this goal.
7. Budget Summary

The Appendix contains a summary of expenditure and commitments made. These figures may differ slightly from current account balances, due to unpaid commitments. We are grateful to Kane Lynch, CLAS Finance Director, for managing the Institute accounts and advising us on budgetary matters. To summarize income and expenditure:

Initial budget, July 1st 2018 – June 30th 2019:
- $350,000 from Tier 1 funding
- $160,000 Core Staff Carryover FY19
- $100,000 from VPR
- $110,000 from CLAS
- $50,000 from School of Medicine
- $91,500 misc rollover
- $225 recouped seed funds
- $860,250 total

Expenditure:
- $530,882

Commitments:
- $319,628

TOTAL uncommitted to rollover into AY 2019/20:
- $9,740

We anticipate for FY 2019/20 the following funding:
- Provost’s Office: $350,000
- OVPR: $100,000
- School of Medicine: $50,000
- CLAS: $110,000
- Rollover: $9,740
- TOTAL: $619,740

Notes

1. This includes $214K carried forward into FY19/20 to guarantee funds in FY19/20 for core staff: Admin Assistant (Mastrangelo), Lab Manager (Joergensen), IBRAiN fellows. The Institute Executive Committee agreed with the CLAS Business Office that we can, each year, carry forward into the subsequent year sufficient funds to cover the costs of these core staff.

2. Remaining commitments include reserved funds for Summer Grad fellows, grant writing workshop catering, new computer for admin, SL workshop and Educational Playcare fellowship funds (The 1st has been awarded, although funds will not be spent until FY20. The 2nd is pending).

3. This rollover is mostly due to year 4 unspent seed commitments.
8. CASE STUDIES: INSTITUTE-SUPPORTED COLLABORATIONS

Here, we very briefly outline 2 case studies.

1. Family Brain Program. This first case study describes how an IBaCS seed grant enabled a feasibility study that led to a $3.4M grant from the National Institutes of Health. The research will use fMRI on parents and their children to explore the relative contributions of genetic and environmental factors to the development of reading.

2. Miller Lab. This case study outlines a collaboration between IBACS and the Department of Digital Media & Design (DMD) at the School of Fine Arts at UConn. The collaboration created a series of six short films which profiled IBACS-affiliated researchers and their work. The project served the dual purpose of both introducing a broad audience to the types of research underway at the Institute, while also helping deepen the participating faculty members’ appreciation for both the challenges and opportunities that public communication presents.

1. The Family Brain Program

Language, reading, and math ability are complex traits that develop through interactions between genetic and environmental factors on multiple brain networks. Impaired development of these networks can result in specific learning disabilities, such as dyslexia, a prevalent learning disorder, the risk of which is greatly increased when a parent or close relative has dyslexia. This pattern of dyslexia within families provides evidence for intergenerational transmission of brain and behavioral traits from parents to their offspring.

Some researchers have used twin studies to investigate how the genetic and environmental components of intergenerational transmission contribute to reading. By comparing identical twins (who share close to 100% of their genetic material) and non-identical twins (who share about half of their genetic material), researchers have found that the ability to read new words or non-words is much more heritable than the skilled reading ability for very familiar words. However, the interpretation of twin studies can be complicated by gene-environment interactions. For example, a parent with dyslexia might pass on a genetic susceptibility for dyslexia, but also spend less time reading with their child—an environmental factor. One way to better differentiate genetic and environmental factors is to look at parent-offspring similarity in cases where a parent raises a child, but is not genetically related. The increasing use of assisted reproductive technologies, including the use of donor egg or sperm, makes this possible and provides a well-controlled way of partially dissociating genetic and environmental pathways to intergenerational transmission.

In Fall 2017, Dr. Roeland Hancock received an IBaCS seed grant to show that it was feasible to recruit parents and their assisted conception children into a neuroimaging study at the Brain Imaging Research Center. The State of Connecticut and neighboring Massachusetts require relatively generous insurance coverage for infertility treatments, helping to make UConn a successful environment for this project. With help from the IBaCS-supported UConn KIDS program, the seed grant provided critical pilot data that helped secure five years of NIH R01 funding (R01HD094834) awarded in Spring 2019. Together with co-PI Dr. Fumiko Hoeft (UConn Storrs), Dr. Claudio Benadiva (Center for Advanced Reproductive Services/UConn Health), and collaborators at UC San Francisco, the team plans to recruit over 160 families between UConn and UC San Francisco to better understand the neurobiology of language, reading, and math, and develop neurobiologically-informed, developmentally appropriate interventions and protective strategies. Learn more about the project at http://nidl-lab.org/family.
2. **Miller Lab: Faculty Film Series**

The faculty film series was a collaborative research project conducted by IBACS and the Department of Digital Media & Design (DMD) at UConn’s School of Fine Arts. Through a cooperative research agreement with Professor Tim Miller at DMD, who specializes in scientific communication, the Institute funded the creation of a series of six short films which profiled Institute-affiliated faculty members and their work. Produced over a series of 18 months, the films served a dual purpose; they were intended both as a vehicle to expose a broader audience to Institute-supported research and as a mechanism to foster an appreciation on the part of the participants for the complexity of this kind of public engagement.

The key component of the success of the film series was the collaboration with Miller’s research group. A nationally-recognized leader in the field of science communication, and the author of *Muse of Fire: Storytelling and the Art of Science Communication*, Miller specializes in the use of film and other time-based media to convey scientific concepts to broad public audiences. Working together, Miller and Dr. Altmann identified a collaborative research program that would be to their mutual benefit: The Institute would receive the finished films for their own use in public engagement, while Miller would be able to use the opportunity as a platform for his own experimentation, as well as a valuable production experience for his students.

The films were produced through a three-step process. The first step, pre-production, involved writing the scripts for the films. This was accomplished through an iterative process, where each of the participating faculty members worked directly with Professor Miller to draft and finalize a script of less than 300 words that summarized their research. The second step was production, where Miller and a team of undergraduates under his supervision filmed the interviews and other footage. Finally was post-production, in which the finished films were edited together and published.

The final publication of the films is still underway, but the finished versions were exhibited publicly for the first time in May of this year. The screening event was also an important component of Miller’s research agenda, as it included an extended Q&A with the participating faculty, and it was Miller’s first opportunity to assess whether or not the experience had achieved the desired effect; giving the faculty members a deeper appreciation of how difficult and complex the process of meaningful public engagement can really be. While the full results of that research are still being analyzed, early indicators are encouraging. Over the next academic year, Miller and IBACS researchers plan to identify ways in which this program can be sustained here at UConn, and to publish the results of Miller’s study in hopes that the model can be successfully implemented and tested elsewhere.

*These are just two of the many projects that the Institute has supported since its inception. The Institute encourages collaborative and interdisciplinary research that pushes at the frontiers of scientific discovery, promoting novel theoretical development and the application of novel research methods.*
APPENDICES

1. Budget Summary

2. Recipients and topics of IBACS Seed Grants

3. Recipients of IBACS Graduate Summer Fellowships

4. Recipients of IBACS Undergraduate Research Fellowships

5. Recipients of IBRAiN Assistantships and IBACS-InCHIP Fellowships

6. Activity reports from: BIRC (IBRAiN program), CSSERL, MBNF, ECOM and IBACS lab manager

7. Publications describing IBACS-supported research

8. Meet and Speak Program, and post-event feedback
## APPENDIX 1

### BUDGET SUMMARY

**STARTING BUDGET**  
$860,250 (see Revenue entry below)

<table>
<thead>
<tr>
<th>Expenditure and Commitments</th>
<th>notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>meetings</strong></td>
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<tr>
<td>CEDAR Workshop</td>
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<tr>
<td>SL Workshop</td>
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<td>Neuroscience at Storrs</td>
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<td>InCHIP Lecture Series</td>
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<td>MikeFest</td>
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<td>Language Fest</td>
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<td>Science of Understanding</td>
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<td>Grant-Writing Workshop</td>
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<td>Meet &amp; Speak</td>
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<td><strong>group support</strong></td>
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<td>Murine Facility</td>
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<tr>
<td>ECOM (grant)</td>
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<td><strong>seed grants &amp; fellowships</strong></td>
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<tr>
<td>Fall 18 &amp; Spring 19 grants</td>
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<td>6 IBRAIN Summer 19 fellowships</td>
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<td>UConn Health fellowship</td>
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<td>Fellowship residual Summer 18</td>
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<td>16 Grad fellowships Summer 19</td>
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<td>15 UG fellowships</td>
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<td>Educational Playcare fellowship</td>
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<td>Brain Digest fellowships</td>
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<td><strong>misc.</strong></td>
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<td>Misc. expenses¹</td>
<td>$7,220</td>
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<td><strong>personnel</strong></td>
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<td>IBRAIN Fall 2018/Spring 2019</td>
<td>$85,571</td>
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<td>Lab Mgrs Fall 2018/Spring 2019</td>
<td>$29,016</td>
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<td>Core staff salary carryover</td>
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<td>Admin</td>
<td>$50,212</td>
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<td>post-doc (67%)</td>
<td>$56,397</td>
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<td>Directors’ summer salaries:</td>
<td>$25,661</td>
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**Total Spend to date**  
$530,882

**Total Remaining Commitments**  
$319,628

**TOTAL uncommitted to rollover into FY20**  
$9,740

**Revenue ($860,250)**

<table>
<thead>
<tr>
<th>Revenue</th>
<th>notes</th>
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<tr>
<td>$350,000</td>
<td>Provost</td>
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<td>$160,000</td>
<td>Core Staff Rollover</td>
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<td>$110,000</td>
<td>CLAS</td>
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<td>$100,000</td>
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<td>School of Medicine</td>
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<td>$90,025</td>
<td>Rollover Yr 3²</td>
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<tr>
<td>$225</td>
<td>seed recoup</td>
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</table>

¹Includes: facility fees, admin search expenses, new computer, Brain Digest copies, office supplies and post-doc H1B fees.

²This large rollover is mostly due to commitments for FY18 that didn’t pay out until FY19.
## APPENDIX 2

### IBACS SEED GRANTS

Only the lead PI is listed, although in all cases there were one or more collaborators and Co-PIs. Details of each can be found at: [http://ibacs.uconn.edu/research/](http://ibacs.uconn.edu/research/)

**SPRING 2018**

<table>
<thead>
<tr>
<th>Lead PI</th>
<th>Dept.</th>
<th>Title</th>
<th>Award Amount</th>
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</thead>
<tbody>
<tr>
<td>Stephen Crocker</td>
<td>UCHC</td>
<td>Aging and the Effect of Senolytic Treatments on the Aged Central Nervous System</td>
<td>$24,490</td>
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<tr>
<td>Roeland Hancock</td>
<td>PSY</td>
<td>Individualized Modeling and Perturbation of Temporal Dynamics</td>
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<td>Akiko Nishiyama</td>
<td>PNB</td>
<td>The role of NG2 cells in the neural network</td>
<td>$12,821</td>
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<tr>
<td>Devin Kearns</td>
<td>EPSY</td>
<td>Statistical Learning in Word Reading Instruction for Poor Readers</td>
<td>$21,589</td>
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<td>Holly Fitch</td>
<td>PSY</td>
<td>Serum biomarkers and caffeine treatment: prediction and enhancement of long-term cognitive outcomes in a preterm brain-injury model</td>
<td>$15,849</td>
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<td>Gerry Altmann</td>
<td>PSY</td>
<td>The Science of Understanding</td>
<td>$15,000</td>
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<td>Dimitris Xygalatas</td>
<td>ANTH</td>
<td>Affective and Social Dynamics in Soccer</td>
<td>$9,680</td>
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<td>Eiling Yee</td>
<td>PSY</td>
<td>Using tDCS to explore dynamic conceptual activation</td>
<td>$8,375</td>
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<td>Chris Heffner</td>
<td>SLHS</td>
<td>Brain and Cognitive Sciences in Intermuseum Contexts</td>
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<td>Letitia Naigles</td>
<td>PSY</td>
<td>The dynamics of parent-child object exploration in the wild</td>
<td>$7,560</td>
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**FALL 2018**

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<thead>
<tr>
<th>Lead PI</th>
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<tbody>
<tr>
<td>Devin Kearns</td>
<td>EPSY</td>
<td>tDCS-enhanced Orthographic Intervention</td>
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<td>James Chrobak</td>
<td>PSY</td>
<td>Improving auditory discrimination and memory: brain rhythms meet sensory input</td>
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<td>Name</td>
<td>Department</td>
<td>Project Description</td>
<td>Budget</td>
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<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
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<tr>
<td>Geoffrey Tanner</td>
<td>PNB</td>
<td>Understanding molecular and cellular underpinnings of post-head-trauma aggression</td>
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<td>Corina Goodwin</td>
<td>LING</td>
<td>Identification of Language Impairment with Dynamic Assessments of Vocabulary</td>
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<td><strong>SPRING 2019</strong></td>
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<tr>
<td>James Li</td>
<td>UCHC</td>
<td>Roles of Foxp1 and Foxp2 in the development and function of the cerebellum</td>
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<td>James Magnuson</td>
<td>PSY</td>
<td>Computational principles underlying predictive processing in human spoken word recognition: Establishing neuroimaging feasibility for an external grant proposal</td>
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<td>Alexandra Paxton</td>
<td>PSY</td>
<td>Dyadic coupling in simulated firefighter search-and-rescue tasks</td>
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<td>James Dixon</td>
<td>PSY</td>
<td>Postural balance control of a tensegrity system by a recurrent artificial neural network</td>
<td>$8,654</td>
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## APPENDIX 3
### GRADUATE SUMMER FELLOWSHIPS

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Advisor</th>
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</thead>
<tbody>
<tr>
<td>Chiovaro Megan</td>
<td>Psychological Sciences</td>
<td>Alexandra Paxton</td>
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<td>Delasanta, Lana</td>
<td>Psychological Sciences</td>
<td>Edward Large</td>
</tr>
<tr>
<td>Fisk, Eleanor</td>
<td>Human Development/Family Sciences</td>
<td>Caitlin Lombardi</td>
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<td>Frazier, Phillip</td>
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<td>James Dixon</td>
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<td>Hardy, Cara</td>
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<td>Phil Smith</td>
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<td>Herman, Julianna</td>
<td>Physiology &amp; Neurobiology</td>
<td>Joanne Conover</td>
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<td>Lee, Derek</td>
<td>Physiology &amp; Neurobiology</td>
<td>Geoffrey Tanner</td>
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<td>Mankovich, Amanda</td>
<td>Psychological Sciences</td>
<td>Adam Sheya</td>
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<td>Morrow, Hannah</td>
<td>Psychological Sciences</td>
<td>Eiling Yee</td>
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<td>Oshiro, Briana</td>
<td>Mathematics</td>
<td>Thomas DeFranco</td>
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<td>Pijewski, Robert</td>
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<td>Stephen Crocker</td>
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<td>Smith, Kasey</td>
<td>Psychological Sciences</td>
<td>Heather Read</td>
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<td>Srinivasan, Preeti</td>
<td>Communications</td>
<td>Anne Oeldorf-Hirsch</td>
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<td>Tecoulesco, Vivi</td>
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<td>Letitia Naigles</td>
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<td>Yang, Jen-Hau</td>
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<td>John Salamone</td>
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<tr>
<td>Zhang, Yuan</td>
<td>Human Development/Family Sciences</td>
<td>Linda Halgunseth</td>
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**APPENDIX 4**

**IBACS UNDERGRADUATE RESEARCH FELLOWSHIPS**

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<th>Name</th>
<th>Department</th>
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<td>Braun, Maxime</td>
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<td>John Salamone</td>
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<td>Daggula, Kirantheja</td>
<td>Psychological Sciences</td>
<td>Holly Fitch</td>
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<td>Deoss, Christina</td>
<td>Psychological Sciences</td>
<td>Marie Coppola</td>
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<td>Dimarco, Olivia</td>
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<td>John Salamone</td>
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<td>Geoffrey Tanner</td>
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<td>John Salamone</td>
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<td>Hebert, Caroline</td>
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<td>Kalaria, Amar</td>
<td>Physiology &amp; Neurobiology</td>
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<td>Orea, Jairo</td>
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<td>Zhong, Lily</td>
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### APPENDIX 5

**IBACS BIRC RESEARCH ASSISTANTSHIPS IN NEUROIMAGING (IBRAiN)**

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<td>Jim Magnuson</td>
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<tr>
<td>Ly, Monica</td>
<td>Psychological Sciences</td>
<td>Chi-Ming Chen</td>
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<td>Prystauka, Yanina</td>
<td>Psychological Sciences</td>
<td>Gerry Altmann</td>
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<tr>
<td>Yearling, Emily</td>
<td>Psychological Sciences</td>
<td>Adam Sheya</td>
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<tr>
<td>Zhang, Xu</td>
<td>Biomedical Engineering</td>
<td>Sabato Santaniello</td>
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**IBACS-INCHIP FELLOWSHIP, CENTER ON AGING**

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<tr>
<td>Franzen, Nina</td>
<td>Public Health</td>
<td>Jennifer Cavallari</td>
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APPENDIX 6

IBACS AFFILIATED GROUP REPORTS

A. BIRC IBRAiN PROGRAM (submitted by Dr. R. Hancock)
B. CSSERL (submitted by Dr. J. Magnuson)
C. MBNF 2015-2019 (submitted by Dr. R. Fitch)
D. ECOM (submitted by Dr. D. Bar-On)
E. IBACS LAB MANAGER (submitted by Dr. G. Joergensen)
A. BIRC IBRAiN Program

The IBACS-BIRC Research Assistantships in Neuroimaging (IBRAiN) program supported 6 graduate students during FY19. Students participate in three main activities:

Training
IBRAiN students received formal training in neuroimaging methods, design, and analysis, primarily using the popular AFNI software package. The first semester of training was expanded to include students outside the IBRAiN program through the new PSYC5171 course offering.

The fellows also receive more generalized scientific training to prepare them for the increasing need to handle big data and conduct reproducible and transparent research. This aspect of the training has emphasized:

- The importance of reproducible research
- Scripting/programming generalized analysis pipelines
- The use of tools to facilitate reproducible research, e.g. standardized file hierarchies and GitHub (used for homework submission and feedback).
- Use of high performance computing and big data infrastructure.

This year students also participated in the Neuroimaging Analysis Replication and Prediction Study, a large-scale project studying outcome variability associated with analysis choices. Participating students will be included as co-authors on planned manuscripts from the project.

Research Support
The fellows provide individual training and guidance to PIs and their students, helping to advance research programs for faculty who would like to conduct neuroimaging research, but may not have the necessary expertise in their own labs, while acquiring additional hands-on experience to further develop the fellows’ expertise and intellectual breadth. The fellows supported PIs from multiple colleges and departments, including: Altmann (PSYCH), Britner (HDFS), Coelho (SLHS), Eigsti (PSYCH), Kearns (Neag Ed), Hancock (PSYCH), Hoef (PSYCH), Landi (PSYCH), Lepley (Kinesiology), Myers (SLHS), Rohner (HDFS), Santaniello (BME), Yee (PSYCH). Research support was provided through regular office hours, individual meetings with PIs/students, EEG training, implementing and documenting general purpose imaging pipeline, and joining new users during their first MRI session to ensure efficient data collection. Additionally, some students rotated in established neuroimaging labs to gain additional hands-on experience.

Outreach
IBRAiN fellows lead occasional guided tours of BIRC for prospective graduate students, graduate and undergraduate courses, visitors, and pre-college students. Fellows supported tours for

- Prospective graduate applicants to the Clinical and Developmental programs in Psychological Sciences
- Eastern Connecticut State University - PSY451 class
- E.O. Smith High School

Future directions
The IBRAiN program will support 5 students in FY20. The FY20 selection process was changed to place greater emphasis on the alignment between IBRAIN seed projects and student degree plans, as well as faculty advisor research and funding directions. To accommodate this reduction in student support from
6 to 5 students, training will focus on supporting researchers in the use of preconfigured neuroimaging analysis pipelines, which is expected to be less burdensome than supporting bespoke analyses.

**Summary**
The IBRAiN program has been positively received by both the fellows and PIs. Fellows appreciate the additional 'real world' experience and problem solving and generally find the assigned projects intellectually engaging. The fellows have made critical contributions to several projects anticipated to lead to external grant proposals. This success illustrates the promise of the IBRAiN program as a resource for supporting faculty independence.
B. CSSERL 2018-2019

Cognitive Science Shared Electrophysiology Resource Laboratories
Director: James Magnuson

CSSERL eBRAIN RAs
Charlie Wasserman was employed in an IBACS-funded RAship for 10 hours / week in the fall. Yi Wei was employed in an IBACS-funded RAship for 10 hours / week fall and spring. Dave Saltzman was employed in an IBACS-funded RAship for 10 hours / week in the spring. In this document, we refer to them as the "eBRAIN RAs"; "e" stands for "electrophysiology". We can best summarize their activities by placing them in three categories: administration and maintenance, support, training, outreach, and research.

Administration and Maintenance
This category includes activities that ensure the facility and its infrastructure are in top shape. These activities include:

- Replacing (again) and maintaining the online calendar system. 2.5 hours/week on average
- Administering the website 1.25 hours / week on average
- Verifying equipment for cleanliness, proper storage, concerns regarding wear and tear; this includes fine technical work that requires substantial training and care, such as careful sanding of electrodes that show signs of corrosion. 1.5 hour / week on average
- Managing laundry services (towels). 0.5 hours / week on average
- Monitoring consumables (e.g., electrode contact gel, shampoo, syringes) and ordering supplies when needed. 0.5 hours / week on average
- The eBRAIN RAs are compiling a variety of lab manuals that will help future eBRAIN RAs and lab users. 1 hours / week on average, though tackled in spurts
- Administering 7 computers (keeping operating systems and software up to date, monitoring data storage, installing user-requested software). 1 hour / week on average
- The eBRAIN RAs met with Magnuson nearly every week to discuss CSSERL operations. 0.5 hours / week on average
- **Total time / week: 2.5 + 1.25 + 1.5 + 0.5 + 0.5 + 1 + 1 + 0.5 = 8.75 hours / week**

Support
The eBRAIN RAs provide a variety of support services to lab users, including:

- EEG/ERP experimental design consulting. 5 hours / week on average
- EEG/ERP equipment and software support, including outside-of-business hours support for users encountering problems when performing data collection. 1 hour / week average
- EEG/ERP analysis support, including Matlab and ERPlab. 1 hour / week on average
- **Total time / week: 5 + 1 + 1 = 7 hours / week**

Training
- Ad-hoc training matched to user need and experience levels; ~16 users trained from multiple departments. Sessions are scheduled on an ad-hoc basis, with 1-5 trainees. 1.25 hours / week on average (22 hours fall, 13 hours spring, 35 / 14 = 1.25)
- **Total time / week: 1.25 hours / week**
Research
The eBRAIN RAs are authorized to devote unassigned time to EEG-related activities like reading papers or books or learning new software. Both RAs devote an average of 1.5 hours per week to research. This time enhances the knowledge of the RAs and their ability to provide expert service. *Total time / week: 3.0 hours*

**Total eBRAIN RA time**
- 8.75 Maintenance and administration
- 7.00 Support
- 1.25 Training
- 3.00 Research
- **20 hours / week**

Labs that have benefited from eBRAIN activities this year (14 from 5 depts., 7 programs)
Halgunseth (HDFS), Landi (PSYC:DEV), Large (PSYC:PAC), Magnuson (PSYC:PAC), Myers (SLHS), Skoe (SLHS), Sprouse (LING), Theodore (SLHS), Wurmbrand (LING), Yee (PSYC:PAC), Read (PSYC:BNS), Stevenson (PSYC:BNS), Tabor (PSYC:PAC), Gielo-Perczak (BME)

**CSSERL USAGE**
The new calendar system allows us to track usage (when users reserve space; we estimate compliance at about 90%). The lab was consistently used an average of 37.5 hours per week from 9/26/18-12/14/18 and from 1/23/19-5/28/19.

**SUMMARY STATEMENT AND REQUEST FOR CONTINUATION.** The eBRAIN RAs are providing essential services to users and potential users of CSSERL. Our training and outreach activities are beginning to have their desired effect: we are increasing activity among our existing user base and increasing the user base. New labs participating include Read, Stevenson (eye tracking), Tabor, and Gielo-Perczak.
C. MBNF 2018-2019

Murine Behavioral Neurogenetics Facility
Director: R. Holly Fitch

MBNF Activity Summary, 2018-19
The MBNF has been in continuous use, and provided behavioral phenotyping services for a number of UConn PIs over this past year. A primary user has been Dr. Mike O’Neill (MCB), who recently received NIH R21 funding based in part on data obtained through the MBNF. More recently we performed behavioral testing for Dr. Maxim Volgushev (Psych/BNS), who received an REP to support the collection of pilot behavioral data from A1 receptor knock-out mice to support an RO1 application. This project is ongoing. In addition, Dr. John Salamone (Psych/BNS) continues to use the facility, and has received external funding to support this mouse work. We are in process of designing and implementing an experimental protocol for Dr. James Li (UCHC), to test his Foxp1 and Foxp2 cerebellar KO mice, again to obtain data for an RO1 application (this project has been slowed by the need to re-derive the mice, due to the different health status of UCHC and UConn animal vivaria). The MBNF Director, R. Holly Fitch, has submitted 4 external grant applications over the past year that would provide additional subsidy to the MBNF -- 2 of these are still pending (2 not funded). Over a dozen peer-reviewed journal articles were either published or are under review that include data obtained from the MBNF (see IBACS Data Summary for details), and a further dozen plus posters and talks delivered with data from the MBNF. Several Letters of Support were written for new grant applications (O’Neill, MCB (awarded); Ostroff/Kanadia, PNB (pending); Li, UCHC (in resubmission); Fitch, Psych/BNS (pending); Salamone, Psych/BNS (awarded); see IBACS Data Summary for further details).

MBNF Revenue Summary, 2018-19
In May 2018, the MBNF held ~ 44K. We spent ~ 12K in Personnel (primarily RA) over the summer, and 49K for a fulltime Research Assistant during the academic year (61K total for Personnel). We received 40K from IBACS to offset the cost of the RA. In addition, we received 19K from an REP (Volgushev/Fitch) to support breeding and behavioral and electrophysiologic evaluation of a novel mouse model (A1 receptor KO). Over the same year we spent ~ 19K on animal costs (av 1,560/month) and ~ 13K in supplies, leaving a current balance of ~ 10K (Figures 1 & 2).
**MBNF Projected Revenue Summary, 2019-2020**

Going forward, the MBNF has a balance of **10K**, and an anticipated income of **40K** from IBACS. We are also in the process of transferring about **12K** from the R21 received by Dr. Mike O’Neill, which includes retrospective and projected MBNF fees. We anticipate a minimum additional amount of **20K** (or more) from grants currently pending that include MBNF funding. Of these resources (82K, Figure 3), we anticipate future spending (2019-20) of 13K on Supplies and 19K on Animal Costs (based on historic analyses). We will be substantially reducing the overhead for the facility costs by using a 20-hr GA to both run the MBNF, and provide a graduate training opportunity at the same time. Cost estimates include Summer funding of 2 GAs at 5K each. These costs will still leave an 8K buffer for other expenses (Figure 4). In summary, we expect the MBNF will continue to offer critical behavioral phenotyping services for multiple PIs on the UConn and UCHC campuses, based on a modest annual investment from IBACS of 40K.
D. ECOM 2018-2019

Expression, Communication, and the Origins of Meaning
Director: Dorit Bar-On

AY 2018-19 has been a successful year for ECOM – in many ways, its best to date. We are very grateful to all our sponsors for their past and continued support. Below are some highlights of ECOM’s 2018-19 activities.

1. On May 3-4, 2019, we hosted a highly successful and fruitful interdisciplinary workshop titled *Communications, Context, Conversation*.
   - We were fortunate to obtain a first-rate lineup of main speakers and invited participants (in part through connections – national and international – fostered through the director’s and some members’ travel and presentations). This, in turn, led to a great deal of interest in the event. We had nearly 60 registered participants.
   - We received 37 submissions for contributed papers from 14 countries, including (but not limited to): Portugal, Kazakhstan, Mexico, Italy, Belgium, Switzerland, and Poland. Many of these were both high quality and topical submissions, which made the decision process quite difficult. In the end, we decided to accept 5 contributed papers (rather than the original 4), and we made room for a poster session (somewhat of a novelty in philosophy), in order to allow several more people to share their projects at this event. We also ended up bringing on more invited discussants than originally planned.
   - We have been looking into the possibility of either an edited volume or special journal issue as a result of the conference.

2. On February 8th, we held a *Meet & Greet*, the purpose of which was to:
   - further strengthen interdisciplinary ties between ECOM affiliates in the UConn community, as well as establishing new ones, and
   - inform graduate students of our first annual Summer Graduate Research Fellowship Program.
   A summary of the meet and greet presentations can be found via the link provided above.

3. This year, we launched a new *Summer Graduate Research Fellowship Program* designed to support UConn graduate students pursuing ECOM-related projects with a potential for cross-disciplinary collaborations. With generous support from the Philosophy department, we were able to award a total of $7,500 split between four graduate students. The titles of the awarded projects are:
   - “The Origins of Denial” (Ken Ito)
   - “Knowledge of Meaning” (Ryo Tanaka)
   - “Pragmatic Unsettledness: A Pragmatic Solution to the Syntactic Problems of the-Predicativism” (Eno Agolli)
   - “Curiosity: What May Connect Homo Sapiens to the Rest” (Aliyar Ozercan)

   In addition, ECOM member Drew Johnson received $2,000 (in Summer 2018 and early Fall 2019) for work on an ECOM-related paper with ECOM director. The (40-page) paper is now forthcoming in a prestigious international volume on epistemology.

   The recipients of ECOM support will present their work at an event in early Fall (see below).

4. ECOM hosted a successful *Speaker Series*: 8 talks were given by 6 invited speakers, who came from Brown University, Smith College, Penn State, the University of Cincinnati, the University of Houston, and our very own UConn. Attendance at the talks this year has exceeded expectations. We regularly had 25-40 attendees from a number of departments.
(This year we established a new model for ECOM speakers’ visits: we try to bring a speaker for a full two-day visit, giving one Philosophy talk and one CogSci/Linguistics/Psychology talk, with individual meetings set up in between.)

5. During the summer of 2018, ECOM hosted a reading group on Ruth Garrett Millikan’s *Beyond Concepts: Uniccepts, Language, and Natural Cognition*, attended by Prof. Millikan herself. The reading group, which had 7 intensive meetings, culminated in summary notes prepared by ECOM director (with assistance from ECOM member Drew Johnson), and edited and approved by Prof. Millikan. The notes will be published later this summer online.

6. ECOM members and affiliates have been active this year – they have attended interdisciplinary and international conferences and workshops, received awards, and formed promising relationships with notable scholars across disciplines and universities. Below are some highlights (for more, see our [News page](#)):

- ECOM member Drew Johnson was one of the recipients of this year’s Ruth Garrett Millikan Graduate Research Fellowship. This fellowship was created in 2017 with the aid of generous admirers, friends, and colleagues of Professor Ruth Garrett Millikan, one of the world’s most distinguished living philosophers, and a cherished member of UConn’s philosophical community. The recipients are outstanding ABD students in the Philosophy Department who use the fellowship to further their graduate research study in the summer of the award year. Drew was also invited (following a joint presentation with ECOM Director at St. Andrews University, Scotland, in October 2018) to be a visiting graduate student at the prestigious Arche Institute in St. Andrews. He has just returned from a month visit during which he gave two Philosophy talks (one at St. Andrews, one at Aberdeen).
- ECOM member Phillip Barron has been admitted to this summer’s [Diverse Intelligences Summer Institute](#). Sponsored by the John Templeton Foundation, this summer research program on mind, cognition, and intelligence will be held at the University of St. Andrews from 6/30/19 – 7/20/19.
- ECOM Director Dorit Bar-On will be a faculty member at this summer’s Diverse Intelligences Summer Institute. She will be giving lectures July 1-3.
- ECOM Research Specialist Teresa Allen presented a paper titled “Against the Purely Epistemic Point of View” at the Edinburgh Graduate Epistemology Conference May 6-7, 2019.
- ECOM Director Dorit Bar-On has given more than 15 talks on ECOM-related topics, nationally and internationally. Of special note is a paper jointly written with with St. Andrews Evolutionary Psychologist Kate Arnold entitled “How to Do Things With Nonwords: Communication, Expression, and Meaning”, presented at the workshop “Linguistic Investigations Beyond Language: Gestures, Body Movement and Primate Linguistics” at ZAS in Berlin, March 11-12, 2019. Bar-On and Arnold will be continuing their collaboration this summer during Bar-On visit at St. Andrews.
- Maria Botero, Associate Professor of Philosophy at Sam Houston State University, published a paper in the International Journal of Comparative Psychology in 2018. A version of this paper, titled “Bringing Touch Back to the Study of Emotions in Human and Non-Human Primates: A Theoretical Exploration,” was presented at ECOM’s 2018 Conference on Emotions and Expressions. More information about this paper can be found [here](#).

7. Several new faculty, graduate, and affiliate members have joined the ECOM network; we now boast more than 40 members.
ECOM: Looking Ahead

Taking the measure of this year’s successes, we are looking forward to keeping up the momentum in the next couple of years. In addition to continuing with our speaker series and discussion groups, we are making the following plans:

1. This coming year, we will be introducing an ECOM Spotlight series, featuring talks by ECOM faculty members, as part of our speaker series. This would enable faculty to introduce UConn faculty and students to ECOM-related research, and will hopefully lead to collaborative ECOM-related projects.

2. We have begun discussion with Yale graduate students who participated in our Spring workshop on the possibility of organizing a UConn-Yale ECOM-related graduate student conference in the Fall of 2019.

3. Next year will be ECOM’s tenth anniversary (having been established at UNC-Chapel Hill in 2010, before moving to UConn in 2014). To celebrate the occasion, we have begun planning a large-scale, multidisciplinary conference titled Expression, Language, and Music (ELM). As this is intended to be a major international and interdisciplinary conference, it will require multiple organizers and collaborators. ECOM Director Dorit Bar-On has already met with UConn’s Whit Tabor and Ed Large, who have expressed enthusiasm for joining the project. We will be seeking funding for this conference both within and outside UConn.

4. We look forward to building relationships with other members of the New England Humanities Consortium (NEHC), which was established just this past year. With the foundational work in place thanks to the NEHC, we hope to identify faculty and students working on ECOM-related topics at other Consortium member institutions in order to establish and cultivate lasting relationships with these other institutions. In particular:
   - ECOM director has recently discussed the possibility of a consortium-based workshop on expression, aesthetics, and communication with a senior professor at Dartmouth Philosophy.
   - We hope to interest the Consortium in a week-long summer institute geared toward generating interest among members of consortium institutions in ECOM’s existing activities (speaker series, discussion groups, workshops, summer fellowships), as well as generating new collaborations on ECOM-related projects amongst workshop participants.
   - One expected outcome is that interested institutions will establish ECOM "chapters," which will operate independently of, but in collaboration with, UConn’s own founding chapter.

5. In the early fall, ECOM will hold a Meet & Greet featuring presentations by this year’s recipients of ECOM support (see above).
Dr. G. Joergensen spends 1/3 time managing Yee Lab (currently paid for by Yee), and 2/3 time (paid by IBACS) managing Altmann Lab, and the IBACS projects listed here:

Summary: 12 IBACS projects with 10 PIs (and 22 additional collaborators) across 5 departments. Five of these on MRI and simultaneous eye-tracking in BIRC (marked * below), 6 on eye-tracking (†), and 1 using other behavioral measures.

<table>
<thead>
<tr>
<th>Name of study</th>
<th>PI</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Brain Mechanisms of Empathy: A Study Using Spontaneous, Dynamic, and Naturalistic Displays</td>
<td>Ross Buck</td>
<td>Communication</td>
</tr>
<tr>
<td>*The neural correlates of early word recognition</td>
<td>Jay Rueckl</td>
<td>Psychology (PAC)</td>
</tr>
<tr>
<td>†Executive Functioning in children with SLI</td>
<td>Tammie Spaulding</td>
<td>SLHS</td>
</tr>
<tr>
<td>Executive Functioning in a Weight Loss Maintenance Treatment</td>
<td>Amy Gorin</td>
<td>InChip</td>
</tr>
<tr>
<td>*An exploratory fixation-related fMRI study of text reading in poor comprehenders</td>
<td>Nicole Landi</td>
<td>Psychology, (DEV)</td>
</tr>
<tr>
<td>*Intervention &amp; Neuroimaging for Polysyllabic Word Reading</td>
<td>Devin Kearns</td>
<td>NEAG</td>
</tr>
<tr>
<td>*ASD Optimal Outcomes</td>
<td>Inge-Marie Eigsti</td>
<td>Psychology (CLIN)</td>
</tr>
<tr>
<td>†We all get a bit emojinal: Facial emojis as nonverbal cues for emotion and facial mimicry</td>
<td>Anne Oeldorf-Hirsch</td>
<td>Communication</td>
</tr>
<tr>
<td>†Learning from the news: Eye-tracking perspective</td>
<td>Anne Oeldorf-Hirsch</td>
<td>Communication</td>
</tr>
<tr>
<td>†Language-mediated eye movements and cochlear implants</td>
<td>Rachel Theodore</td>
<td>SLHS</td>
</tr>
<tr>
<td>†Eye-tracking study for reading equations</td>
<td>Thomas DeFranco</td>
<td>NEAG</td>
</tr>
<tr>
<td>†Eye-tracking with kids</td>
<td>Letitia Naigles</td>
<td>Psychology, (DEV)</td>
</tr>
</tbody>
</table>
APPENDIX 7
PUBLICATIONS:
July 1st 2018 – June 30th 2019

Recipients of seed grants, and affiliate members, were asked to submit articles and book chapters published since July 1st 2018 that were supported directly or indirectly by IBACS. “Direct Support” means that the Institute had funded work that was described or referred to in the published work, or had funded work that led, one way or another, to the published work. “Indirect Support” means work that had been “inspired” by IBACS-related activities or the ethos that has been generated since the inception of the Institute. Names in bold indicate IBACS affiliates.

A. DIRECTLY SUPPORTED OUTPUTS

1. Peer Reviewed Journal Articles Directly Supported by IBACS, published or in press


2. **Peer Reviewed Journal Articles Directly Supported by IBACS, under review**


Kim, J.1, Muhammad S. S.1,2, & Trakhtenberg, E.F.1*. Premature myelination of regenerating CNS axons arrests their growth. 1Department of Neuroscience, University of Connecticut School of Medicine, 263 Farmington Ave., Farming-ton, CT, 06030, USA. 2University of Hartford, 200 Bloomfield Ave., West Hartford, CT 06117, USA.


3. **Conference Presentations and Abstracts Directly Supported by IBACS**


Sprouse, J. (2019, March). Experimental syntax and three case studies in movement. Keynote talk at ICTEAP 2, Tsinghua University, Beijing, China.

Sprouse, J. (2019, June). Experimental syntax and three case studies in movement. Invited talk at the Comparative Germanic Syntax Workshop 34, University of Konstanz, Germany.

Sprouse, J. (2019, June). Four island studies, and their consequences for the empirical landscape of island effects. Keynote talk at symposium on Island Phenomena in the Scandinavian Languages, Aarhus University, Denmark.


Vali, K., Lee, D. C., & Tanner, G. R. (2019, February). Dietary effects on TBI-induced olfactory task learning deficits in Drosophila melanogaster. NEURON Conference, Quinnipiac University, North Haven, CT.

B. INDIRECTLY SUPPORTED OUTPUTS

1. Peer Reviewed Journal Articles Indirectly Supported by IBACS, published or in press


2. **Peer Reviewed Journal Articles Indirectly Supported by IBACS, under review**


Yang J. H. et al. (under review). *Psychopharmacology.*

3. **Book Chapters Indirectly Supported by IBACS**


### 4. Conference Abstracts Indirectly Supported by IBACS:


APPENDIX 8

Meet-and-Speak Event
Tuesday, May 14th, 2019 in Oak Hall 101

9:00 AM Breakfast, Coffee – 20 minutes

9:20 AM Gerry Altmann, Director, CT Institute for the Brain and Cognitive Sciences
Welcome to the Institute

9:30 AM Kim Krieger, University Communications
More citations, grants and love: work with your science writer

9:47 AM Roeland Hancock, Psychological Sciences
Individualized Modeling and Perturbation of Temporal Dynamics

10:04 AM Eiling Yee, Psychological Sciences
Using tDCS to explore dynamic conceptual activation

10:21 AM James Chrobak, Psychological Sciences
Improving auditory discrimination and memory: brain rhythms meet sensory input

10:38 AM Coffee Break – 10 minutes

10:48 AM Stephen Crocker, Neuroscience at UConn Health
Aging and the Effect of Senolytic Treatments on the Aged Central Nervous System

11:05 AM Derek Lee, Physiology and Neurobiology
Understanding molecular and cellular underpinnings of post-head-trauma aggression

11:22 AM Devin Kearns, Educational Psychology
Individual Differences in Memory and Children’s Response to Different Reading Interventions

11:39 AM Corina Goodwin, Linguistics
Identification of Language Impairment with Dynamic Assessments of Vocabulary

12:00 PM Lunch – 1 hour and 15 minutes

Graduate Student Data Blitz

1:15 PM Nina Franzen, Public Health at UConn Health
Overactive Bladder: The Role of Cognitive Function in Bladder Control

1:39 PM Benjamin DeBari, Psychological Sciences
Bimodal Foraging in Non-Equilibrium Chemical Systems

1:51 PM Emily Yearling, Psychological Sciences
Keeping track of change: The development of event representation by tracking object histories

2:03 PM Timothy McKay, Human Development and Family Studies
Cognitive processes and decision-making among TGNC youth

2:30 PM Poster Session / Open Forum – 1 Hour

4:00 PM Oak Hall 101 – Tim Miller, from the Department of Digital Media and Design, presents six short films profiling scientists affiliated with the Institute:
Gerry Altmann, Psychological Sciences
Dorit Bar-On, Philosophy
Marie Coppola, Psychological Sciences
Emily Myers, Speech, Language and Hearing Sciences
John Salamone, Psychological Sciences
Phillip Smith, Surgery at UConn Health
Meet-and-Speak Event
Wednesday, May 15th, 2019 in Oak Hall 101

9:00 AM Breakfast, Coffee – 30 minutes

9:30 AM Dorit Bar-On, Philosophy
ECOM and IBACS

9:47 AM Sara DeAngelio and Corina Goodwin, Speech, Language and Hearing Sciences
Brain and Cognitive Sciences in Intermuseum Contexts

10:04 AM Dimitris Xygalatas, Anthropology and Gabriela Pinto, Psychological Sciences
Affective and Social Dynamics in Soccer

10:21 AM Letitia Naigles, Amanda Mankovich and Adam Sheya, Psychological Sciences
The dynamics of parent-child object exploration in the wild

10:38 AM Holly Fitch, Psychological Sciences
Serum biomarkers and caffeine treatment: prediction and enhancement of long-term cognitive outcomes in a preterm brain-injury model

10:55 AM Coffee Break – 20 minutes

11:15 AM Phillip Smith, Surgery at UConn Health
How IBACs Helped Move the Aging Bladder Into The Future

11:32 AM Michael O’Neill, Molecular and Cell Biology
How Seed Grants Germinate in Unexpected Ways: From Brains to Balls and Back Again

12:00 PM Lunch – 1 hour and 15 minutes

Graduate Student Data Blitz

1:15 PM Sarah Camera, Speech, Language and Hearing Sciences
A Measure of Central Auditory Inhibition: Reliability and Relationship with Noise Exposure

1:27 PM Zachary Ekves, Psychological Sciences
Bottom-up influences on repeat object reference

1:39 PM Natali Naveh, Molecular and Cell Biology
Xir3 Function in Mouse Reversal Learning

1:51 PM Kirsty Coulter, Psychological Sciences
Autism Spectrum Disorder Symptom Expression in Toddlers; The Toddler Autism Symptom Inventory (TASI)

2:03 PM Preeti Srinivasan, Communication
Attention! Read, Forget? News presentation modalities, retention and learning from social media news

2:30 PM Poster Session / Open Forum – 1 Hour

IBRAIN Student Data Blitz

3:30 PM Timothy Michaels, Psychological Sciences
Magnetic Resonance Spectroscopy Investigation of Conditioned Sensory Percepts

3:47 PM Monica Ly, Psychological Sciences
Classifying History of Concussion in University Athletes

4:04 PM Charles Davis, Psychological Sciences
Is the episodic memory system suppressed when processing abstract concepts?

4:21 PM Yanina Prystauka, Psychological Sciences
Meaning Representation during Language Processing: the Case of State Change

5:00 PM Keynote, Oak Hall 101 - Richard Aslin, Senior Scientist at Haskins Laboratories in New Haven, CT presents: Mechanisms of prediction in the brain and prediction from the brain

Feedback from 12 respondents to a post-event questionnaire: 2 made new contacts potentially leading to collaboration. All somewhat (2) or strongly (10) agreed that the event is useful for the research community. All said they were somewhat (4) or very (8) likely to recommend the event to a colleague or student.