UCONN | UNIVERSITY OF CONNECTICUT

Connecticut **Institute** for **the Brain** and **Cognitive Sciences**

UCONN

CONNECTICUT INSTITUTE FOR THE BRAIN AND COGNITIVE SCIENCES

Annual Report, Year 4
2018-19

Contents:

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.

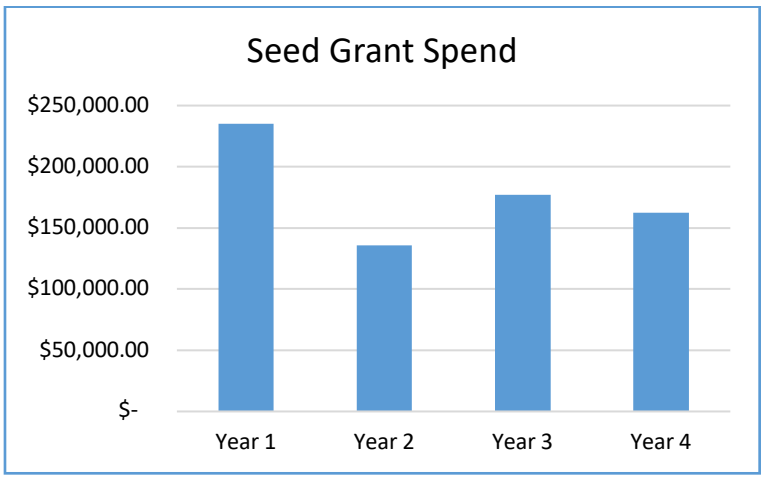
3. GOVERNANCE

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

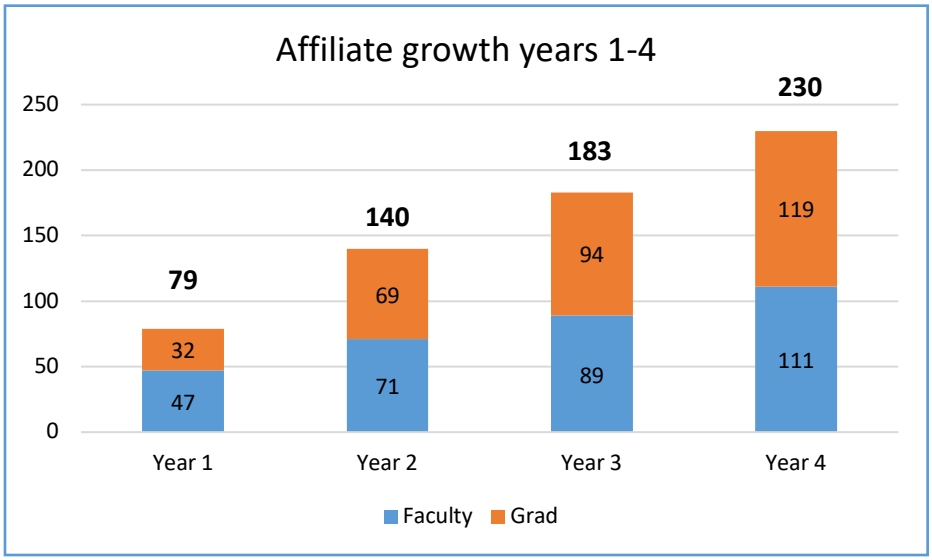
a block grant of $40K to MBNF to support Institute-funded and affiliated research with mouse models (linking cognitive behavior to neuroscience and genetics). A summary report and financial breakdown is included in Appendix 6C.

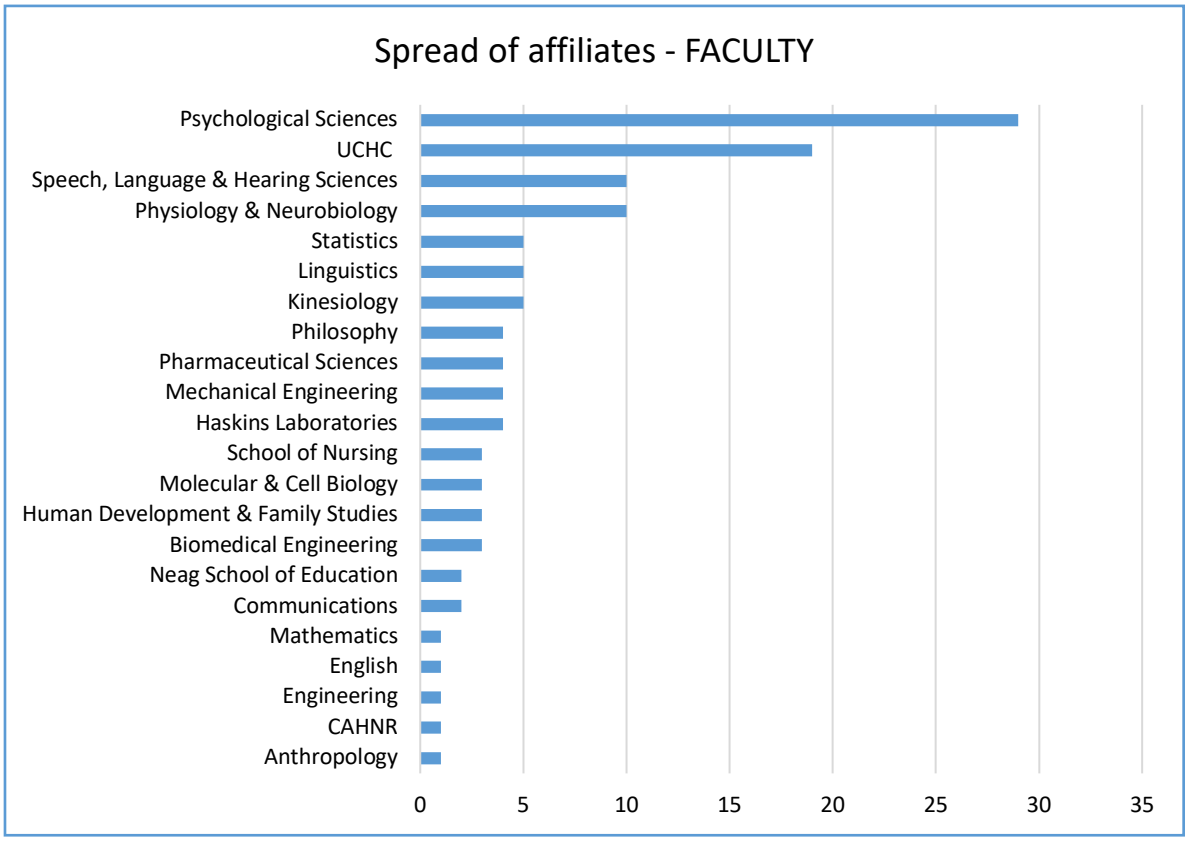
b. **Cognitive Science Shared Electrophysiology Labs** (CSSERL): Lab manager (20 GA hours per week). CSSERL supports the electrophysiological (EEG) research of faculty in SLHS, Linguistics, BME, HDFS and Psychological Sciences. A summary report is included in Appendix 6B.
c. **IBACS Lab Manager:** Dr.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

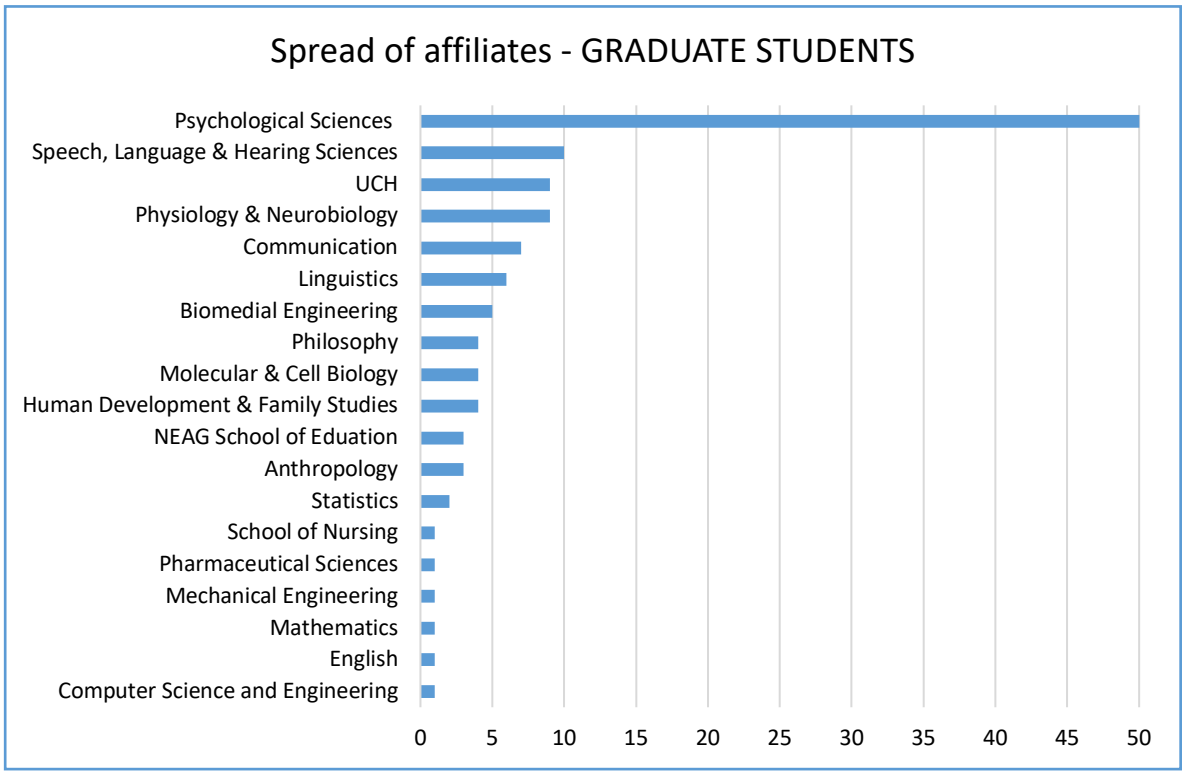
6. **Group Support during the past year (July 2018 – June 2019):**
   a. **Expression, Communication, and the Origins of Meaning (ECOM) Research Group** ($5,000). To support organization of the ECOM Spring Workshop and their speaker series. A summary of ECOM activities is included as Appendix 6D.
   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).




Spread of affiliates - FACULTY
Psychological Sciences
UCHC
Speech, Language & Hearing Sciences
Physiology & Neurobiology
Statistics
Linguistics
Kinesiology
Philosophy
Pharmaceutical Sciences
Mechanical Engineering
Haskins Laboratories
School of Nursing
Molecular & Cell Biology
Human Development & Family Studies
Biomedical Engineering
Neag School of Education
Communications
Mathematics
English
Engineering
CAHNR
Anthropology
0 5 10 15 20 25 30 35


Spread of affiliates - GRADUATE STUDENTS
Psychological Sciences
Speech, Language & Hearing Sciences
UCH
Physiology & Neurobiology
Communication
Linguistics
Biomedial Engineering
Philosophy
Molecular & Cell Biology
Human Development & Family Studies
NEAG School of Eduation
Anthropology
Statistics
School of Nursing
Pharmaceutical Sciences
Mechanical Engineering
Mathematics
English
Computer Science and Engineering
0 5 10 15 20 25 30 35 40 45 50

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. They 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).

5. METRICS FOR EVALUATING INSTITUTE IMPACT: July 1st 2018 – June 30th 2019

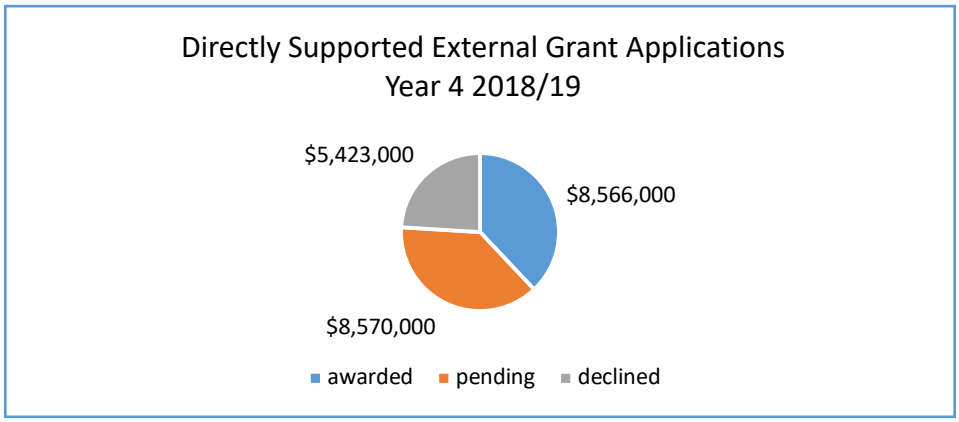
The Institute's impact is twofold: in respect of the research ethos it is stimulating and in respect of more tangible outputs such as grant applications and publications. One of the core missions of the Institute is to foster new collaborative research initiatives, through facilitating dialog across 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)[1]
- 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)[2]
- 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)[3]
- **grant hit rate** (# grants awarded as percent of # grants applied for): 23% (equal to 23% last year)[3]

***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.*



[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.

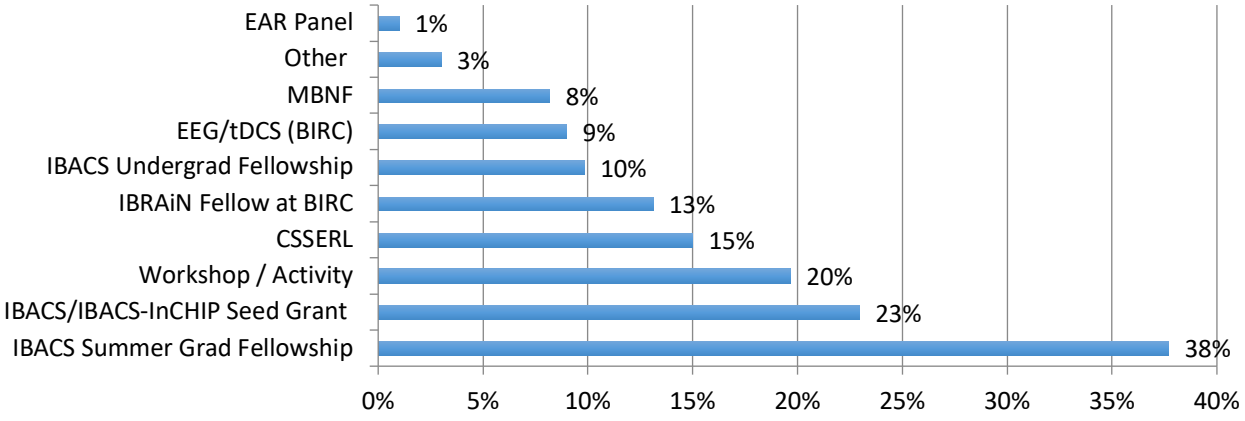
Publications and other output: In Appendix 7 we list publications by Institute affiliates in two categories – *Directly* supported and *indirectly* supported. Institute affiliates were given the following guidance: if the Institute had funded work that was described or referred to in the published work, 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.

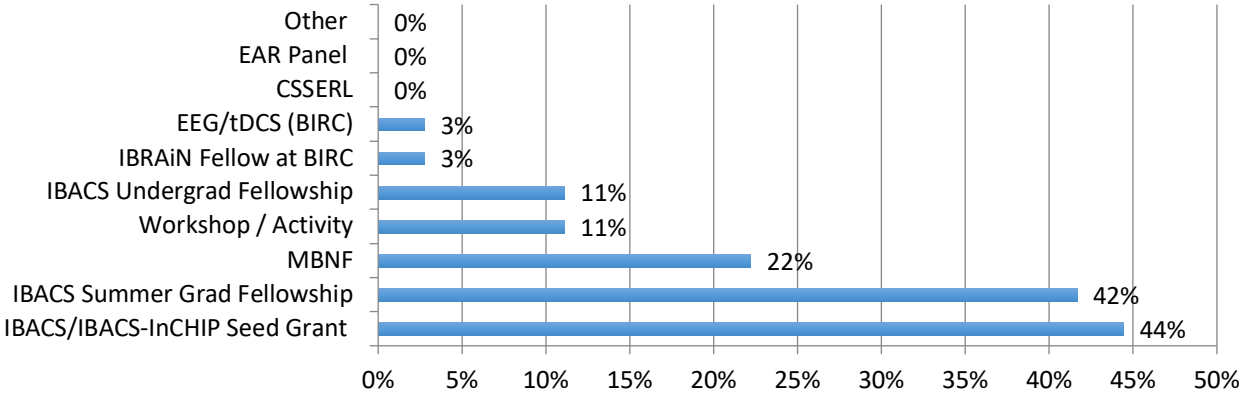
Use of Resources Supported by IBACS

n = 123 respondents



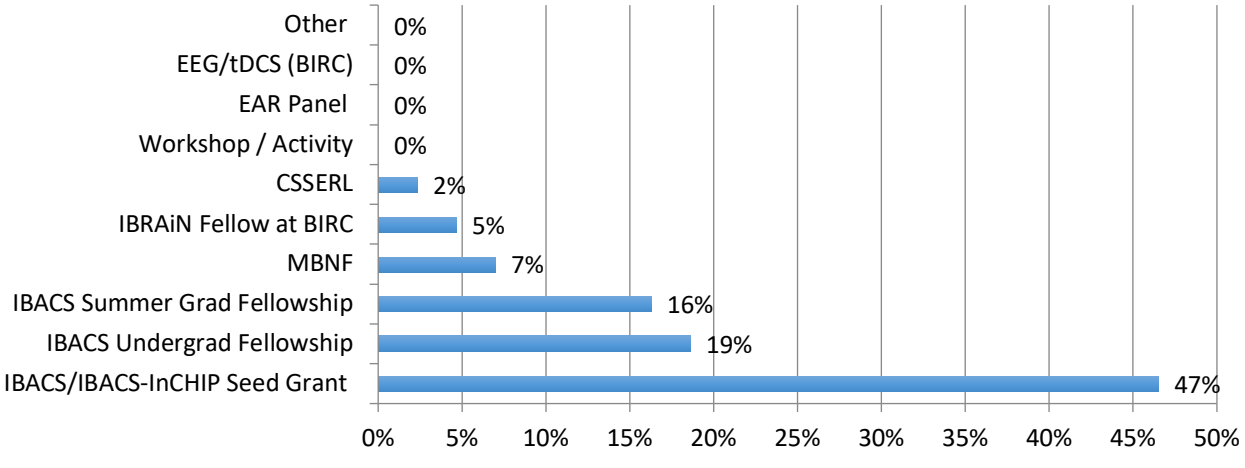
Resource Use - Directly Supported Grants

n = 35 grant applications



Resource Use - Directly Supported Scholarly Products

n = 43 products



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/CSSERL/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/CSSERL/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[1, 2]:
- $319,628

TOTAL uncommitted to rollover into AY 2019/20[3]:
- $9,740

We anticipate for FY 2019/20 the following funding:

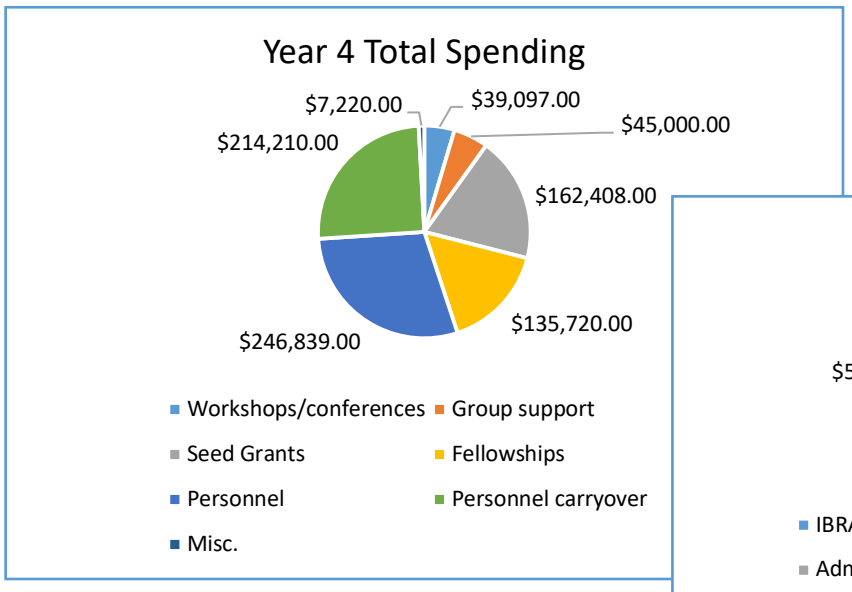
Provost's Office:	$350,000
OVPR:	$100,000
School of Medicine:	$50,000
CLAS:	$110,000
Rollover:	$9,740
TOTAL	**$619,740**

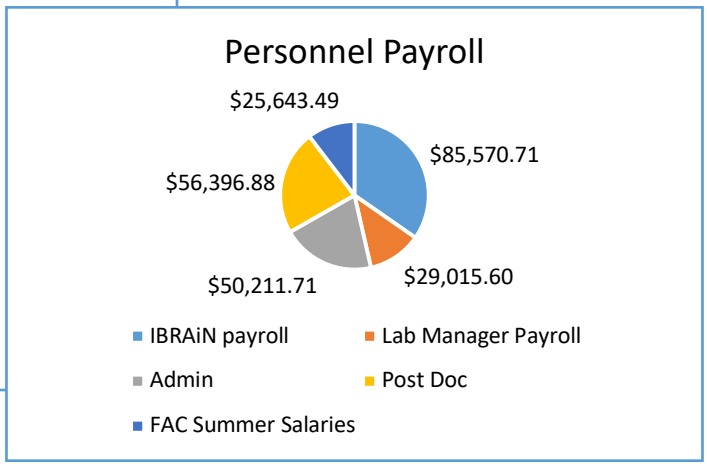
Notes

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 is 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.

MILLER LAB

The undergraduate film crew

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)	
Expenditure and Commitments		*notes*
meetings		
CEDAR Workshop	$3,000	
SL Workshop	$2,000	
Neuroscience at Storrs	$300	
InCHIP Lecture Series	$1,000	
MikeFest	$2,300	
Language Fest	$5,000	
Science of Understanding	$9,367	
Grant-Writing Workshop	$11,037	
Meet & Speak	$5,093	
group support		
Murine Facility	$40,000	
ECOM (grant)	$5,000	
seed grants & fellowships		
Fall 18 & Spring 19 grants	$162,408	
6 IBRAiN Summer 19 fellowships	$30,000	
UConn Health fellowship	$5,000	$5K from InCHIP also
Fellowship residual Summer 18	$8,000	
16 Grad fellowships Summer 19	$58,000	
15 UG fellowships	$25,470	
Educational Playcare fellowship	$3,250	
Brain Digest fellowships	$6,000	
misc.		
Misc. expenses[1]	$7,220	
personnel		
IBRAiN Fall 2018/Spring 2019	$85,571	
Lab Mgrs Fall 2018/Spring 2019	$29,016	
Core staff salary carryover	$214,210	
Admin	$50,212	
post-doc (67%)	$56,397	
Directors' summer salaries:	$25,661	
Total Spend to date	**$530,882**	
Total Remaining Commitments	**$319,628**	
TOTAL uncommitted to rollover into FY20	$9,740	

Revenue ($860,250)

$350,000	Provost
$160,000	Core Staff Rollover
$110,000	CLAS
$100,000	VPR
$50,000	School of Medicine
$90,025	Rollover Yr 3[2]
$225	seed recoup

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

SPRING 2018

Lead PI	Dept.	Title	Award Amount
Stephen Crocker	UCHC	Aging and the Effect of Senolytic Treatments on the Aged Central Nervous System	$24,490
Roeland Hancock	PSY	Individualized Modeling and Perturbation of Temporal Dynamics	$23,873
Akiko Nishiyama	PNB	The role of NG2 cells in the neural network	$12,821
Devin Kearns	EPSY	Statistical Learning in Word Reading Instruction for Poor Readers	$21,589
Holly Fitch	PSY	Serum biomarkers and caffeine treatment: prediction and enhancement of long-term cognitive outcomes in a preterm brain-injury model	$15,849
Gerry Altmann	PSY	The Science of Understanding	$15,000
Dimitris Xygalatas	ANTH	Affective and Social Dynamics in Soccer	$9,680
Eiling Yee	PSY	Using tDCS to explore dynamic conceptual activation	$8,375
Chris Heffner	SLHS	Brain and Cognitive Sciences in Intermuseum Contexts	$7,683
Letitia Naigles	PSY	The dynamics of parent-child object exploration in the wild	$7,560

FALL 2018

Devin Kearns	EPSY	tDCS-enhanced Orthographic Intervention	$25,000
James Chrobak	PSY	Improving auditory discrimination and memory: brain rhythms meet sensory input	$24,978

Geoffrey Tanner	PNB	Understanding molecular and cellular underpinnings of post-head-trauma aggression	$23,762
Corina Goodwin	LING	Identification of Language Impairment with Dynamic Assessments of Vocabulary	$5,193

SPRING 2019

James Li	UCHC	Roles of Foxp1 and Foxp2 in the development and function of the cerebellum	$25,000
James Magnuson	PSY	Computational principles underlying predictive processing in human spoken word recognition: Establishing neuroimaging feasibility for an external grant proposal	$25,000
Alexandra Paxton	PSY	Dyadic coupling in simulated firefighter search-and-rescue tasks	$24,821
James Dixon	PSY	Postural balance control of a tensegrity system by a recurrent artificial neural network	$8,654

APPENDIX 3
GRADUATE SUMMER FELLOWSHIPS

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

APPENDIX 4

IBACS UNDERGRADUATE RESEARCH FELLOWSHIPS

Name	Department	Advisor
Braun, Maxime	Psychological Sciences	John Salamone
Daggula, Kirantheja	Psychological Sciences	Holly Fitch
Deoss, Christina	Psychological Sciences	Marie Coppola
Dimarco, Olivia	Psychological Sciences	John Salamone
Frageau, James	Physiology & Neurobiology	Geoffrey Tanner
Gallo, Jason	Psychological Sciences	John Salamone
Hebert, Caroline	Psychological Sciences	Marie Coppola
Kalaria, Amar	Physiology & Neurobiology	Joanne Conover
O'Toole, Timothy	Physiology &Neurobiology	Geoffrey Tanner
Orea, Jairo	Physiology & Neurobiology	Linnaea Ostroff
Shah, Arsal	Psychological Sciences	John Salamone
Sylvain, Corine	Psychological Sciences	Marie Coppola
Willion, Elliott	UConn Health Center	James Li
Zhong, Lily	Physiology & Neurobiology	Alexander Jackson

APPENDIX 5

IBACS BIRC RESEARCH ASSISTANTSHIPS IN NEUROIMAGING (IBRAIN)

Name	Department	Advisor
Davis, Charles	Psychological Sciences	Eiling Yee
Li, Monica	Psychological Sciences	Jim Magnuson
Ly, Monica	Psychological Sciences	Chi-Ming Chen
Prystauka, Yanina	Psychological Sciences	Gerry Altmann
Yearling, Emily	Psychological Sciences	Adam Sheya
Zhang, Xu	Biomedical Engineering	Sabato Santaniello

IBACS-INCHIP FELLOWSHIP, CENTER ON AGING

Franzen, Nina	Public Health	Jennifer Cavallari

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), Hoeft (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

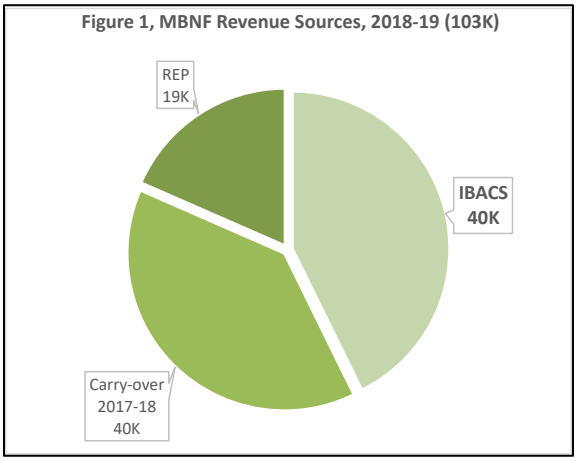
Murine Behavioral Neurogenetics Facility
Director: R. Holly Fitch

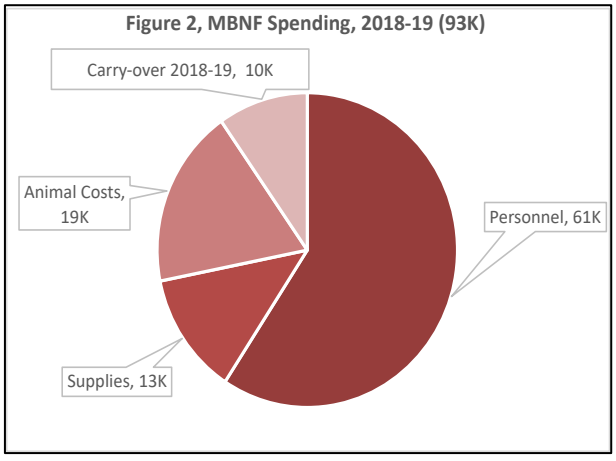
MBNF Activity Summary, 2018-19

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

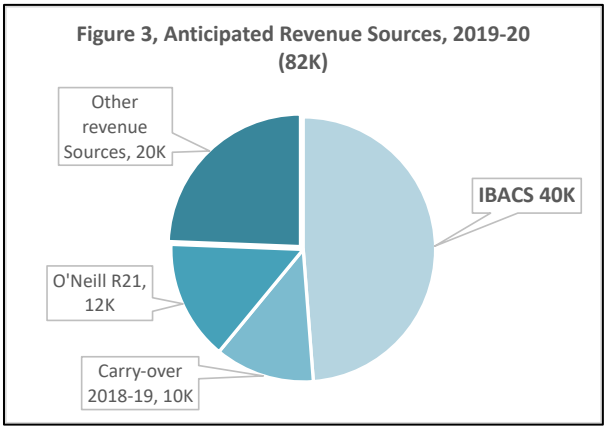
In May 2018, the MBNF held ~ **44K**. We spent ~ **12K** in Personnel (primarily RA) over the summer, and **49K** for a fulltime Research Assistant during the academic year (61K total for Personnel). We received **40K** from IBACS to offset the cost of the RA. In addition, we received **19K** from an 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).

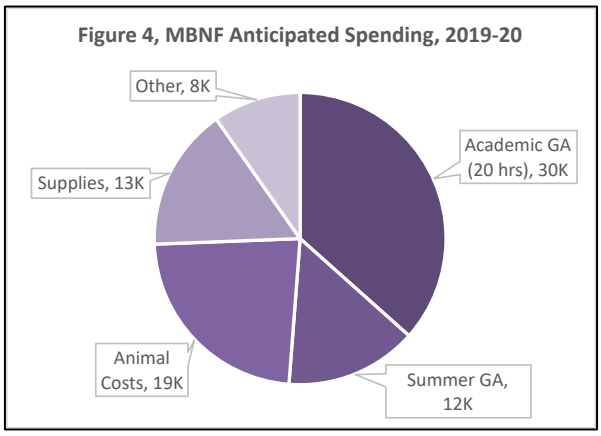




MBNF Projected Revenue Summary, 2019-2020

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 internation 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: Unicepts, 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 Universtiy, 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).

E. IBACS LAB MANAGER 2018-2019

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.

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

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

Al-Naggar I., **Hardy C**., Taweh O. G., Grabauskas T., Mulkey D. K., **Kuchel G. A.**, & **Smith P. P**. (2019). HCN as a Mediator of Urinary Homeostasis: Age-Associated Changes in Expression and Function in Adrenergic Detrusor Relaxation. *The Journals of* Gerontology, Series A, *74*(3), 325–329, https://doi.org/10.1093/gerona/gly137

Altmann, G., & **Ekves, Z**. (2019). Events as intersecting object histories: A new theory of event representation. *Psychological Review*. **DOI:** 10.1037/rev0000154

Brown, K. S., **Allopenna, P. D**., Hunt, W. R., Steiner, R., Saltzman, E., McRae, K., & **Magnuson, J.S**. (2018). Universal features in phonological neighbor networks. *Entropy*, *20*(7), 526.

Camera, S., Tufts, & **Skoe, E**. (in press) Sound exposure and background noise tolerance in listeners with normal audiograms. *Journal of Speech, Language, and Hearing Research*.

Casavant, S. G., **Cong, X**., **Fitch, R. H**., Moore, J., Rosenkrantz,T., & Starkweather, A. (2019). Allostatic Load and Biomarkers of Stress in the Preterm Infant: An Integrative Review. *Biol Res Nurs*, *21*(2), 210-223.

Drouin, J. R., & **Theodore, R. M**. (2018). Lexically guided perceptual learning is robust to task-based changes in listening strategy. *Journal of the Acoustical Society of America, 144*, 1089-1099.

Franzen, N., **Gorin, A**., **Altmann, G**., **Kuchel, G. A.**, & **Smith, P.** (in press). Overactive Bladder: Shortcomings of Current Diagnostic and Treatment Approaches and a New Etiological Paradigm. *Neurourology and Urodynamics Journal*.

Ganugapati, D., & **Theodore, R. M**. (in press). Structured phonetic variation facilitates talker identification. *Journal of the Acoustical Society of America*.

Johns, A. J., **Skoe, E**., & **Myers, E. B**. (2018). Sensory and cognitive contributions to age-related changes in spoken word recognition. *Language and Linguistics Compass, 12*(2), 1-25.

López-Felip, M. A.(cg), Davis, T. J., Frank, T. D., & **Dixon, J. A**. (2018). A cluster phase analysis for collective behavior in team sports. *Human Movement Science*, *59*, 96-111.

Mickelsen, L. E., Bolisetty, M., Chimileski, B. R., **Fujita, A**., Beltrami, E., Costanzo, J., Naparstek, J., Robson, P., & **Jackson, A. C**. (2019). Single cell transcriptomic analysis of the lateral hypothalamic area reveals molecularly distinct populations of inhibitory and excitatory neurons. *Nature Neuroscience, 22*(4), 642-656.

Orena, A. J., Polka, L., & **Theodore, R. M**. (in press). Identifying bilingual talkers after a language switch: Language experience matters. *Journal of the Acoustical Society of America*, *145*, EL303-EL309. https://doi.org/10.1121/1.5097735

Rendall, A., **Perrino, P. A**., Buscarello, A., & **Fitch, R. H**. (2018). Shank3B mutant mice display pitch discrimination enhancements and learning deficits. *IJDN*, *72*, 13-21.

Sumsky S. L., & **Santaniello, S.** (in press) Decision Support System for Seizure Onset Zone Localization based on Channel Ranking and High Frequency EEG Activity. *IEEE Journal of Biomedical Health Informatics*. DOI: 10.1109/JBHI.2018.2867875

Tang-Schomer, M., Jackvony, T., & **Santaniello, S**. (2018). Cortical Network Synchrony under Applied Electrical Field in Vitro. *Frontiers in Neuroscience*, *12*(Article 000630). DOI: 10.3389/ fnins.2018.00630

Theodore, R. M., & Flanagan, E. G. (2019). Determinants of voice recognition in monolingual and bilingual listeners. *Bilingualism: Language and Cognition*. https://doi.org/10.1017/S1366728919000075

Theodore, R. M., & **Monto, N. R**. (2019). Distributional learning for speech reflects cumulative exposure to a talker's phonetic distributions. *Psychonomic Bulletin & Review*. https://doi.org/10.3758/s13423-018-1551-5

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

Giovannone, N., & **Theodore, R. M**. (under review). Contributions to individual differences in lexically guided perceptual learning.

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.

Perrino, P. A., Nedevska, L., Reader, R., Taylor, J. C., Rendall, A. R., Mountford, H. S., Buscarello, A., Lahiri, N., Saggar, A., **Fitch, R. H**., & Newbury, D. F. (under review). Multi-level evidence of an allelic hierarchy of USH2A variants; hearing loss, auditory processing and speech/language outcomes. *The Journal of the American Medical Association.*

Theodore, R. M., **Monto, N. R**., & Graham, S. (under review). Individual differences in distributional learning for speech: What's ideal for ideal observers?

Yang, J. H., **Presby, R. E**., Jarvie, A. A., Rotolo, R. A., **Fitch, R. H**., Correa, M., & **Salamone, J**. (under review). Pharmacological studies of effort-related decision making using mouse touchscreen procedures: Effects of dopamine antagonism do not resemble reinforcer devaluation by pre-feeding. *Neuro-sychopharmacology*.

Zhang, X., & **Santaniello, S**. (under review). GABAergic Degeneration in Cerebellum May Elicit Pacemaker Oscillations Linked to Essential Tremor. *Proceedings of the National Academy of Science USA.*

3. Conference Presentations and Abstracts Directly Supported by IBACS

Coulter, K., Boorstein, H., Barton, M., Robins, D. L., Stone, W.L., & Fein, D. A. (2019, May). *DSM-5 Autism Spectrum Disorder Symptom Expression in Toddlers.* Oral Presentation at the International Society for Autism Research, Montreal, CA.

Coulter, K., Robins, D., Barton, M., Adamson, L. and Fein, D. (2019, February). *Mullen Scales of Early Learning Performance in Children with ASD, GDD, LD, & TD*. Poster presented at the International Neuropsychological Society Annual Meeting, New York, NY

Drouin, J. R., & **Theodore, R. M.** (2018). Effects of receptive language ability on the neural representation of phonetic category structure. *The Journal of the Acoustical Society of America*, 144(3), 1798-1798.

Gagne, D., Goico, S., Pyers, J. and **Coppola, M**. (2019). False belief understanding requires language experience, but its precursor abilities do not. In M. M. Brown & B. Dailey (Eds.) *Proceedings of the 43rd Annual Boston University Conference on Language Development* (pp. 256-269).

Giovannone, N., & **Theodore, R. M**. (2019). Contributions to diminished perceptual learning in individuals with language impairment. *The Journal of the Acoustical Society of America*, 145, (1796-1796). https://doi.org/10.1121/1.5101570

Lecky, E., Sklenarik, S.M., Bulkley, E., DeVincenzi, J., Fernandez, M., Jenkins, K., Livoti, R., Love, C., Miller, K., Mourmouras, M., Pellegrino, S., Gola, M., Potenza, M., & **Astur, R. S**. (2019). *Cognitive Biases for erotic or cannabis stimuli.* Poster at the Annual Eastern Psychological Association conference, New York, NY.

Lee, D. C., Vali, K., Baldwin, S. R., Fequiere, J. F., Fernandez, M. A., Frageau, J. C., Longo, F., Mahdoun, S. S., Mingione V. P., O'Toole, T., Ruiz, M. G. and **Tanner, G. R**. (2019, February). *Dietary effects on TBI-induced aggression in Drosophila melanogaster*. NEURON Conference, Quinnipiac University, North Haven, CT.

Livoti, R., Mourmouras, M., Sklenarik, S.M., Love, C., Fernandez, M., Gola, M., Potenza, M., & **Astur, R**. S. (2019). *Cognitive Biases for erotic stimuli*. Poster presented at the Annual NEURON Conference at Quinnipiac University, Hamden, CT.

Monto, N. R. & **Theodore, R. M**. (2019). Individual differences in distributional learning for speech: What's ideal for ideal observers? *The Journal of the Acoustical Society of America*, 145, (1913-1913). https://doi.org/10.1121/1.5101948

Nguyen, E., & **Sprouse, J**. (2019, January). *ERP satiation of whether-islands impacts scalp distribution, not amplitude*. Talk at the 93nd Annual Meeting of the Linguistic Society of America, New York City, NY.

Petrosino, R. and **Sprouse, J**. (2019, March). *Is morphological decomposition driven by syllabification?* Poster presented at Penn Linguistic Conference.

Rivera-Figueroa, K., Stevens, M. C., & **Eigsti, I. M**. (2019, August). *Individual differences in the neural organization of language, and their relationship to language abilities*. Paper presented at the Society for the Neurobiology of Language, Helsinki, Finland.

Sklenarik, S. M., Padua, M., Love, C., Fernandez, M., Livoti, R., Gola, M., Potenza, M., & **Astur, R. S**. (2018). *Behavioral Biases in People at Risk for Problematic Gambling and Pornography use*. Poster at the Annual Society for Neuroscience conference, San Diego, CA.

Sklenarik, S.M., Padua, M., Love, C., Fernandez, M., Livoti, R., Gola, M., Potenza, M., & **Astur, R. S**. (2018). *Behavioral Biases in People at Risk for Problematic Gambling and Pornography use*. Poster at Frontiers.

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.

Sumsky, S. L. and **Santaniello, S**. (2018, July). Temporal Pattern of Ripple Events in Temporal Lobe Epilepsy: Towards a Pattern-based Localization of the Seizure Onset Zone. *Proc. 40th IEEE EMBS Annual Conference (EMBC)* (pp. 2288-2291). DOI: 10.1109/EMBC.2018.8512742

Theodore, R. M. (2019). Listeners sensitivity to structured phonetic variation. *The Journal of the Acoustical Society of America*. 145, (1688-1688). https://doi.org/10.1121/1.5101189

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

Al-Naggar, I. M., **Hardy, C. C**., Mulkey, D., Taweh, O., Grabauskas, T., **Kuchel, G. A.**, & **Smith, P. P.** (2019). HCN as a mediator of Urinary Homeostasis: Age-associated Changes in Expression and Function in Adrenergic Detrusor Relaxation. *J Gerontol A Biol Sci Med Sci 2019*, *74*, 325-329. doi:10.1093/gerona/gly137

Bar-On, D., & Ochs, J. The Role of Inner Speech in Self-Knowledge: Against Neo-Rylean Views. (2019). *Teorema*, *Vol. XXXVII/1*, 1-18.

Borga, J., & Snyder, W. (2018). Acquisition of French causatives: Parallels to English passives. *Languages*, *3*(18), 1-19. DOI: 10.3390/languages3020018

Chen, C., **Read, H. L**., Escabi, M. A. (in press). A temporal integration mechanism enhances frequency selectivity of broadband inputs to inferior colliculus. *PLOS Biology*.

Chuang, C., Rolison, M., Yang, J. F., Brooks, E. D., Hashim, P. W., Travieso, R., Terner, J., Steinbacher, D. M., **Landi, N**. Stavropoulos, K. K. M., & Mayes, L. C. (2018). Normalization of speech processing after whole-vault cranioplasty in sagittal synostosis. *Journal of Craniofacial Surgery*, *29*(5), 1132-1136.

Coletti, A. M., Singh, D., Kumar, S., Shafin, T. N., Briody, P. J., Babbitt, B. F., Pan, D., Norton, E. S., Brown, E. C., Kahle, K.T., Del Bigio, M. R., **Conover, J. C**. (2018). Characterization of the

ventricular-subventricular stem cell niche during human brain development. *Development*. *145*(20). pii: dev170100. doi: 10.1242/dev.170100. PMID: 30237244 Free Article

Cuevas, K., & **Sheya, A**. (2018). Ontogenesis of learning and memory: Biopsychosocial and dynamical systems perspectives. *Developmental psychobiology*, 402-415.

Dai, Y. G, Brennan, L., Como, A., Hughes-Lika, J., Dumont-Mathieu, T., Rathwell, I., … Fein, D. (2018). A video parent-training program for families of children with Autism Spectrum Disorder in Albania. *Research in Autism Spectrum Disorders*, *56*, 36-49.

Dai, Y. G., Burke J., **Naigles, L.**, **Eigsti, I. M.**, & Fein, D. (2018). Language abilities in single and dual-language learners with Autism or other Developmental Disorders. *Research in Autism Spectrum Disorders*, *55*, 38-49.

Dai, Y. G., Miller, L. E., Ramsey, R. K., Robins, D. L., Fein, D. A., & Dumont-Mathieu, T. (2019). Incremental utility of 24-month Autism Spectrum Disorder screening after negative 18-month screening. *Journal of Autism and Developmental Disorders*.

Fultot, M., **Frazier, A.**, Carello, C., & Turvey, M. (in press). What are nervous systems for? *Ecological Psychology*.

Fusaroli, R., Weed, E., Fein, D., & **Naigles, L.** (2019). Hearing me hearing you: Reciprocal effects between child and parent language in autism and typical development. *Cognition*, *183*, 1-18. doi.org/10.1016/j.cognition.2018.10.022

Hung, Y. H., Frost, S. J., Molfese, P., Malins, J. G., **Landi, N.**, Mencl, W. E., ... & Pugh, K. R. (2018). Common neural basis of motor sequence learning and word recognition and its relation with individual differences in reading skill. *Scientific Studies of Reading*, 1-12.

Kim, J. C., & **Large, E. W.** (2019). Mode locking in periodically forced gradient frequency neural networks. *Physical Review E*, *99*(2), 022421. doi: 10.1103/PhysRevE.99.022421.

Li, M. Y. C., **Braze, D.**, Kukona, A., Johns, C. L., Tabor, W., **Van Dyke, J. A.**, Mencl, W. E., Shankweiler, D. P., Pugh, K. R., & **Magnuson, J. S.** (2019). Individual differences in subphonemic sensitivity and phonological skills. *Journal of Memory & Language*, 107, 195-214. https://doi.org/10.1016/j.jml.2019.03.008

Luthra, S., Guediche, S., Blumstein., S, & **Myers, E.** (2019). Neural substrates of subphonemic variation and lexical competition in spoken word recognition. *Language, Cognition & Neuroscience*, *34*(2), 151-169.

Magnuson, J. S., Mirman, D., **Luthra, S.**, Strauss, T., & Harris, H. (2018). Interaction in spoken word recognition models: Feedback helps. *Frontiers in Psychology*, *9*, 369. doi:10.3389/fpsyg.2018.00369

Malins, J. G., Pugh, K. R., Buis, B., Frost, S. J., **Hoeft, F.**, **Landi, N.**, ... & Sevcik, R. (2018). Individual differences in reading skill are related to trial-by-trial neural activation variability in the reading network. *Journal of Neuroscience*, 0907-17.

Mirkovic, J., & **Altmann, G. T. M.** (2019). Unfolding meaning in context: The dynamics of conceptual similarity. *Cognition*, *183*, 19-43.

Mozeiko, J., Myers, E. B., & **Coelho, C. A.** (2018). Treatment Response to a Double Administration of Constraint-Induced Language Therapy in Chronic Aphasia. *Journal of Speech, Language, and Hearing Research*, 1-27.

Osman, A. F., Lee, C. M., Escabí, M. A., & **Read, H. L**. (2018). A hierarchy of time scales for discriminating and classifying the temporal shape of sound in three auditory cortical fields. *J Neuroscience*. DOI: https://doi.org/10.1523/JNEUROSCI.2871-17.2018

Perdue, M. V., Mascheretti, S., Kornilov, S. A., Jasińska, K. K., **Ryherd, K.**, Mencl, W. E., ... & **Landi, N.** (in press). Common variation within the SETBP1 gene is associated with reading-related skills and patterns of functional neural activation. *Neuropsychologia*.

Rosenkrantz, T. S., Hussain, Z., & **Fitch, R. H**. (2019). Sex differences in brain injury and repair in newborn infants: Clinical evidence and biological mechanisms. *Frontiers in Pediatrics*, Epub ahead of print.

Ryherd, K., Jasinska, K., **Van Dyke, J. A.**, Hung, Y-H., Baron, E., Mencl, W. E., Cutting, L. E., Zevin, J., & **Landi, N.** (2018). Cortical regions supporting reading comprehension skill for single words and discourse. *Brain and Language*, *186*, 32-43.

Ryherd, K., & **Landi, N.** (in press). Category learning in poor comprehenders. *Scientific Studies of Reading.*

Satterwhite-Warden, J. E., Kondepudi, D., **Dixon, J. A.**, & Rusling, J. F. (2019). Thermal-and Magnetic-Sensitive Particle Flocking Motion at the Air-Water Interface. *Journal of Physical Chemistry B*, *123*, 3832-3840.

Sawi, O. M., & Rueckl, J. (2019). Reading and the neurocognitive bases of statistical learning. *Scientific Studies of Reading*, *23*(1), 8-23.

Saxena, S., Sarma, S. V., Patel, S. R., **Santaniello, S.**, Gale, J. T., & Eskandar, E. (2019). Modulations in Oscillatory Activity of Globus Pallidus internus Neurons During a Directed Hand Movement Task – A Primary Mechanism for Motor Planning. *Frontiers in Systems Neuroscience*, *3*(Article 00015). DOI: 10.3389/fnsys.2019.00015.

Sheya, A., & Smith, L. (2018). Development weaves brains, bodies and environments into cognition. *Language, Cognition and Neuroscience*, 1-8.

Smith, G., Franck, J., & Tabor, W. (2018). A self-organizing approach to subject-verb number agreement. *Cognitive Science*, *42* (2018, Suppl. 4): 1043-1074.

Stevenson, I. H. (2018). Omitted variable bias in GLMs of neural spiking activity. *Neural Computation*, *30*(12), 3227-3258. https://doi.org/10.1162/neco_a_01138

Wang, X., Fu, R., Xia, X., **Chen, X.**, Wu, H., **Landi, N.**, ... & Cong, F. (2018). Spatial properties of mismatch negativity in patients with disorders of consciousness. *Neuroscience bulletin*, *34*(4), 700-708.

Xie, X., & **Myers, E. B.** (2018). Left inferior frontal gyrus sensitivity to phonetic competition in receptive language processing: A comparison of clear and conversational speech. *Journal of Cognitive Neuroscience*, *30*(3), 267-280.

You, H., & **Magnuson, J. S.** (2018). TISK 1.0: An easy-to-use Python implementation of the time-invariant string kernel model of spoken word recognition. *Behavior Research Methods*. doi:10.3758/s13428-017-1012-5.

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

Bar-On, D. Neo-Expressivism: (Self-)Knowledge, Meaning, and Truth. *Philosophy* (special issue, forthcoming).

Hardy, C. C., Keilich, S. R., Harrison, A. G., Knight, B. E, Baker, D. S., & **Smith, P. P*.** (submitted March 20, 2019) The Aging Bladder Phenotype Is Not the Direct Consequence of Bladder Aging. *Neurourology and Urodynamics.*

Kang Y-J., Clement, E. M., Sumsky, S. L., Xiang, Y., Park, I-N., **Santaniello, S.**, Greenfield, L. J., Garcia-Rill, E., & Lee, S-H. (under review). The critical role of persistent sodium current in hippocampal gamma oscillations. *Neuropharmacology*.

Khatami, F., & Escabi, M.A. (under review). Spiking network optimized for word recognition in noise predicts auditory system hierarchy. *PLOS Computational Biology*.

Landi, N., & **Perdue, M. V.** (under review). Neuroimaging Genetics Studies of Specific Reading Disability and Developmental Language Disorder: A review. *Language and Linguistics Compass*.

Lerud, K., **Kim, J. C.**, Almonte, F. V., Carney, L. H., & **Large, E. W.** (under review). A canonical oscillator model of cochlear dynamics. *Hearing Research*.

Prystauka, Y., & Lewis, A. G. (under review). The Power of Neural Oscillations to Inform Sentence Comprehension: a Linguistic Perspective. *Language and linguistics compass*.

Sadeghi, M., Zhai, X., **Stevenson, I. H.,** & Escabi, M. A. (under review). A neural ensemble correlation code for sound category identification. *PLOS Biology*.

Seigelman, N., **Kearns, D.**, & Rueckl, J. G. (under review). Using information-theoretic measures to characterize the structure of the writing system: The case of orthographic-phonological regularities. *Behavioral Research Methods*.

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

3. Book Chapters Indirectly Supported by IBACS

Bar-On, D., & Johnson, D. (in draft). Epistemological Disjunctivism: Perception, Expression, and Self-Knowledge. In Pritchard et al. (Eds.), *Epistemological Disjunctivism*. Oxford: Oxford University Press.

Borga, J., & Snyder, W. (2018). French experiencer verbs and the Universal Freezing Hypothesis. In Anna Gavarró (ed.), *On the Acquisition of the Syntax of Romance* (pp. 7-29). John Benjamins. https://doi.org/10.1075/lald.62.02bor

Large, E. W., & **Kim, J.C.** (2019). Musical Expectancy. In P. J. Rentfrow & D. J. Levitin (eds.), *Foundations in Music Psychology: Theory and Research*. Cambridge, MA: MIT Press.

Rueckl, J. G., Zevin, J., & Wolf VII, H. (in press). Using Computational Techniques to Model and Better Understand Developmental Dyslexia. In J. A. Washington, D. L. Compton, & P. McCardle (Eds.), *Dyslexia: Revisiting Etiology, Diagnosis, Treatment, and Policy*. Baltimore, Maryland: Paul H. Brookes Publishing Co.

4. Conference Abstracts Indirectly Supported by IBACS:

Bar-On, D. (2019, March). *Linguistic Investigations Beyond Language: Gestures, Body Movement and Primate Linguistics*. Presented at the Workshop: How To Do Things with Nonwords: Expression, Communication, and Meaning, ZAS in Berlin.

Bar-On, D. (2019, July). Invited lectures on Origins of Meaning at the Diverse Intelligences Summer Institute (DISI), University of St. Andrews.

Bar-On, D. (2019, May). *Pragmatics-First Approaches to the Evolution of Language* (tentative title). Communication, Context, Conversation ECOM Workshop, University of Connecticut.

Buzzanca, A., **Troha, R.**, Shao, T., & Markus, E. (2019). *Observational Learning of a Working Memory, Duration Discrimination Task*. NorthEast Under/graduate Research Organization for Neuroscience Conference, Quinnipiac Univ.

Eigsti, I. M., **Coppola, M.**, **Coulter, K.**, Hector, B., Henner, J., Keenan, E., . . . Steiner, R. (2019, May). *Community Engagement in Deafness and Autism Research (CEDAR): Challenges and promises.* Paper presented at the International Society for Autism Research (INSAR), Montreal, Canada.

Hancock, R. (2018, March). *Genetic topology of the language network.* Presented at the 25th annual meeting of the Cognitive Science Society, San Francisco, CA.

Luthra, S., & **Magnuson, J. S.** *Friends in low-entropy places: Letter position influences orthographic neighbor effects in visual word identification*. In Proceedings of the 40th Annual Conference of the Cognitive Science Society, 2084-2089.

Ly, M., Scarneo, S. E., **Lepley, A. S.**, Coleman, K,. **Chen, C-M., &** Casa, D.J. (2018, November). *Classifying Concussion in University Athletes using Diffusion Tensor Imaging*. Poster presented at: Society for Neuroscience Annual Meeting, San Diego, CA

Markus, E. J., & **Troha, R.**, Dong, D., Hernandez, N., & Shao, T. (2018). *Observational learning in rats: Effects of number and quality of observations*. SFN San Diego, CA

Markus, E. J., & **Troha, R.** (2019). *Effects of number and quality of observations on observational learning in rats*. ISFN, Eilat Israel.

Nguyen, E., & Snyder, W. (2018). *It's hard to extend: A unified account of Raising-Past-Experiencers and Passives in child English*. In Anne B. Bertolini and Maxwell J. Kaplan (Eds.) Proceedings of the 42nd annual Boston University Conference on Language Development, 598-604. Somerville, MA: Cascadilla Press.

Reynolds, B., **Troha, R.,** & Markus, E.J. (2019). *Strategies and Issues with Observational Learning in Rats*. NorthEast Under/graduate Research Organization for Neuroscience Conference, Quinnipiac University.

Smith, G., & Tabor, W. (2018). *Toward a theory of timing effects in self-organized sentence processing*. Proceedings of the International Conference on Cognitive Modeling, Madison, Wisconsin.

Sprouse, J. (2019, January). *Island effects and the role of formal experimental work in linguistic theory*. Talk presented at the Linguistic Society of America Annual Meeting.

Troha, R., Hernandez, N., Wang, J., & Markus, E. J. (2019). *Observational learning in a working memory, operant conditioning task in rats*. NorthEast Under/graduate Research Organization for Neuroscience Conference, Quinnipiac Univ.

Troha, R., Wang, J., Shao, T., & Markus, E.J. (2018). *Observation learning in rats: Effect of strain and hormonal status*. SFN San Diego, CA.

Villata, S., **Sprouse, J.,** & Tabor, W. (2019, March). *Modeling ungrammaticality: A self-organizing model of islands.* CUNY, Colorado (US).

Villata, S., **Sprouse, J.,** & Tabor, W. (2019). *Modeling ungrammaticality: A self-organizing model of islands*. Proceedings of the 41st Annual Conference of the Cognitive Science Society (Cogsci 2019), Montreal, Canada: Cognitive Science Society.

APPENDIX 8

UCONN | UNIVERSITY OF CONNECTICUT

CONNECTICUT INSTITUTE FOR THE BRAIN AND COGNITIVE SCIENCES

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 DeAngelo 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 *Xlr3 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.