



Connecticut Institute for the Brain and Cognitive Sciences



Annual Report, Year 3 2017-18

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EXECUTIVE SUMMARY (and main expenditure):

- 7 **seed grants** awarded (9 applications pending), with PIs across 5 departments: \$78K (\$100K pending).
- 6 **IBRAiN fellows** \$116K.
- 20 **Graduate fellowships** awarded, across 7 departments: \$100K
- 13 **Undergraduate fellowships** awarded, across 3 departments: \$25K
- 22 **External grant applications** (see Section 5) with IBACS-supported pilot data or equivalent, totaling \$18.3M. \$5.6M awarded so far. \$7.6M *pending* (excludes graduate fellowship applications through the Graduate Fellowship Program)
- **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 labs (CSSERL)*; *Expression, Communication and Origin of Meaning group (ECOM)*; *UConn K.I.D.S*; *UConn Logic Group*;
- **Workshop support**: 13 sponsored workshops/meetings/conferences, including IBACS 2-day annual Meet-and-Speak + Community Engagement in Deafness and Autism Research

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

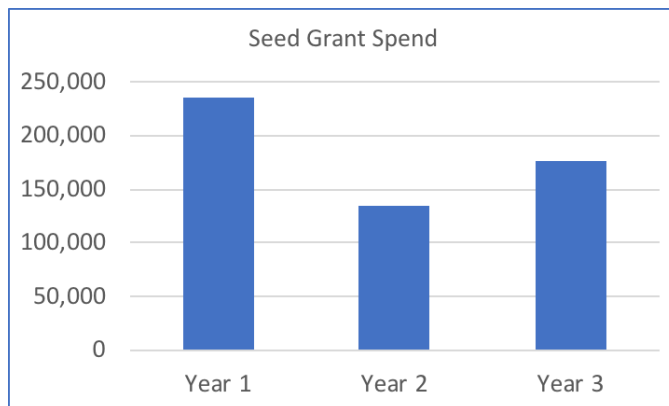
The Institute is managed by a **Director** (Altmann, *Psych Sciences*) and two **Associate Directors** (Magnuson, *Psych Sciences*; LoTurco, *PNB*). They meet with an **Executive Committee** of 10 other faculty drawn from 7 different departments (including Neuroscience at UConn Health, Farmington). The 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.

In 2016/17 a **UConn-internal Advisory Board** was constituted (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). This meets twice a year. An **External Advisory Board** was to be constituted in 2017/18 (to provide different perspectives on the Institute's mission, activities, and successes, and to advise on best practice based on their experience at their own Institutes, Centers, and other organizations). We delayed initiating this advisory board until funding beyond Year 3 was assured. We anticipate constituting this committee in 2019. Throughout the year we have continued to 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, which also provides administrative and financial support).

4. INSTITUTE ACTIVITIES 2017/18:

1. **Seed grants:** We had two calls for seed grants (November 2017 and May 2018) and received 11 applications in November, of which **7 have so far been funded** (approx. \$78,000 *across 5 UConn departments*). Nine more applications from the May 2018 call are under review at the time of writing with an estimated \$100k to be awarded. In addition, 9 seed grants which had been applied for in May 2017 were funded (\$117K) since the writing of the previous Annual Report. Applications were reviewed by one of two panels (depending on topic). No member of a panel was a PI or co-PI on any application in that round. Unlike previous years, two thirds (previously one half) of the dollar amount was awarded to more "cognitive" or behavioral grants, and the remainder to bench or animal neuroscience grants. While we received more neuroscience applications than in previous years, the topics were more likely to fall beyond the Institute's remit. We are monitoring 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 projected amount awarded in AY/FY 17/18: \$178,000.** See Appendix 2. Comparative data on seed grant expenditure across Years 1 to 3 of the Institute are shown in the figure:



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. The Summer 2017 workshop is being repeated Summer 2018. For non-US citizens, their advisor had to commit to writing an application for external funding. We shall follow up on each fellowship (see below for 2017 metrics). The Neurobiology of Language Program had funds for summer payments and we joined forces to enable a larger number of total fellowships. This year (Summer 2018), we funded **20 students, at a cost of \$100,000.** 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.
3. **Undergraduate Fellowships.** The undergraduate fellowship scheme ran for a second 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 10 semester and 3 summer fellowships in 2017/18 at a **total cost of \$25,000.** See Appendix 4.
4. **IBRAiN Program:** The first year of this program has just been completed. This is a Research Assistantship scheme paying graduate students a stipend for 10 hours' assistance per week in BIRC ("IBRAiN" = "IBACS-BIRC Research Assistantships in Neuroimaging). Many PIs intending to work at BIRC require assistance with advanced specialized knowledge currently lacking in their labs (basic knowledge is often sufficient to conceive of appropriate imaging studies, but is not sufficient to actually run the study and analyze the data); this IBRAiN scheme helps develop that knowledge for each PI and their research group. While individual IBRAiN RAs bring these skills back into their own research group (they are given a BIRC seed grant with which to do this), they are allocated to imaging projects from other groups who do not have imaging expertise, in order to help these groups contribute to the growing BIRC user and knowledge base. The first year has seen 5 RA's trained in advanced neuroimaging techniques, joined by one of the CSSERL RAs (see below). Of the six students, 4 will be continuing for a 2nd year on the IBRAiN program, and will be joined by two new graduate students (one from Psychological Sciences, and one from Biomedical Engineering). The continuing students each received a summer fellowship (\$5,000), and the two

new students will receive summer fellowships in 2019. The total cost of the program is approximately **\$116,000**. The need for this level of support, at this time, was recognized by both the BIRC Steering Committee and the IBACS Executive Committee. A summary report is included in Appendix 5.

5. **Other Research Support during the past year (July 2017 – June 2018):**

- a. **Murine Behavioral Neurogenetics Facility (MBNF):** MBNF is a Tier 2 facility. We funded 10 hours per week (1 GA) to support Institute-funded and affiliated research with mouse models (linking cognitive behavior to neuroscience and genetics). Two undergraduate honors projects were supported by the MBNF (aside from 5 other faculty-led projects and one graduate student project). In 2018/19 the MBNF will become a part of IBACS, managed by the current Director, Dr. Fitch. A summary report is included in Appendix 6C.
- b. **Cognitive Science Shared Electrophysiology Labs (CSSERL):** Lab manager (20 GA hours per week – another 10 hours support for EEG/fMRI work was folded into the IBRAiN program). CSSERL supports the electrophysiological (EEG) research of faculty in SLHS, Linguistics, and Psychological Sciences. The lab manager supports Institute-funded and affiliated research at CSSERL as well as at BIRC. A summary report is included in Appendix 6B.
- c. **Brain Imaging Research Center (BIRC).** Aside from the IBRAiN program, Dr. Gitte Joergensen (the Director's lab manager / postdoc) spends a minimum of 12 hours per week 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 Elisa Medeiros (MR Tech) on development and maintenance of other fMRI-based projects. A summary report of her activities (beyond also being the part-time lab manager for the Altmann Lab and Yee lab) is included in Appendix 6A.
- d. **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 described in *Section 8 Case Studies* and is a collaboration between IBACS and the Center on Aging and The Institute for Collaboration on Health, Intervention, and Policy (InCHIP).

6. **Group Support during the past year (July 2017 – June 2018):**

- a. **UConn Logic Group** (\$6,450). To support colloquia, visits, and other activities of the Logic Group – a group of logicians across the departments of Mathematics, Philosophy, and Linguistics.
- b. **Expression, Communication, and the Origins of Meaning (ECOM) Research Group** (\$5,000). To support organization of the ECOM Spring Workshop and their speaker series. See Appendix 6D.
- c. **NEAG School of Education.** We supported a public lecture by Maryanne Wolf on literacy and dyslexia.
- d. **UConn K.I.D.S.** This year, IBACS supported UConn K.I.D.S. through continued support for the UConn server.

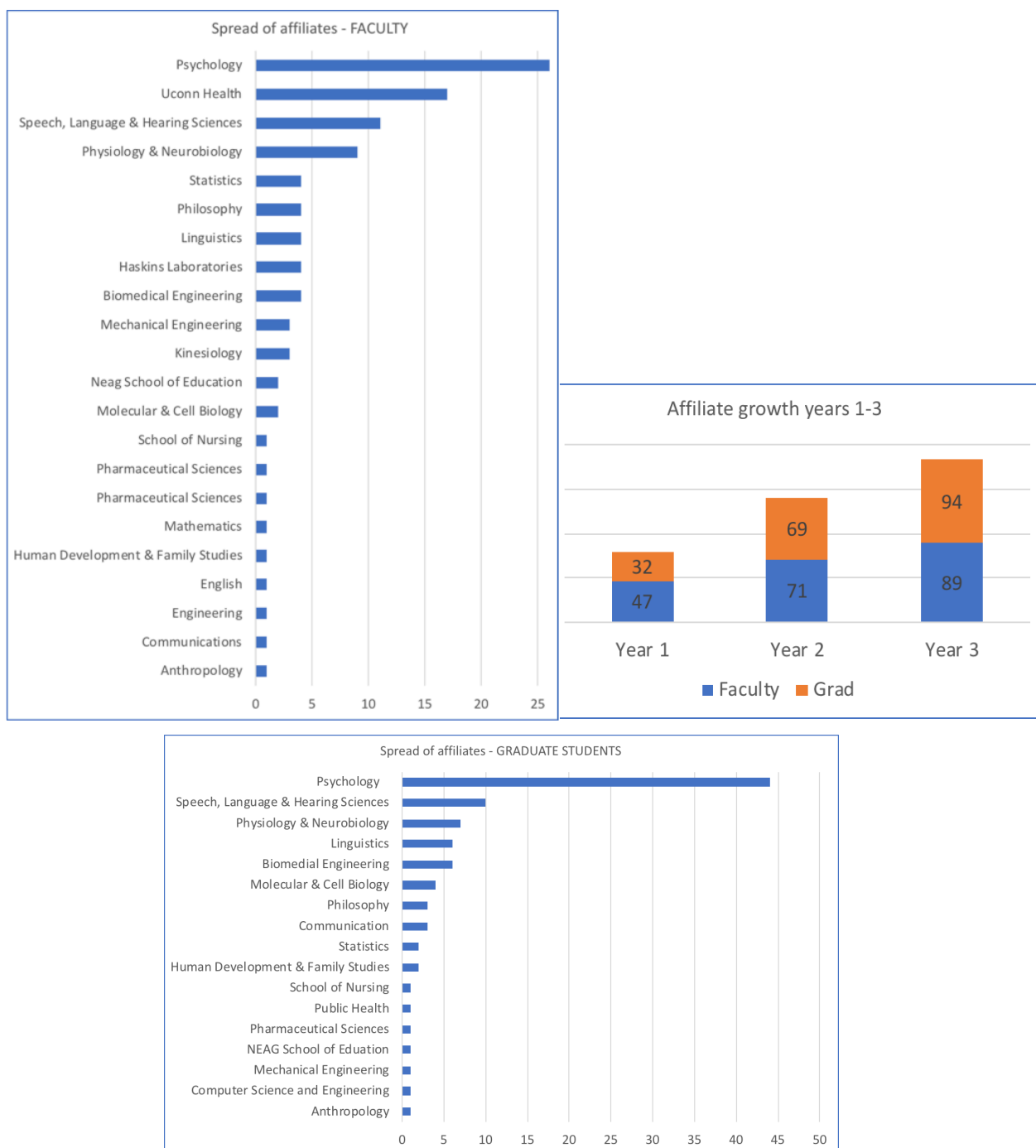
7. **Workshop support.** The Institute supported 13 workshops/conferences: -Neuroscience at Storrs; Science and Story; LangFest; the InChiP Lecture Series; Graduate Fellowship Grant Writing; and the Intel Deep Learning workshop. The Institute also supported several externally sponsored workshops such as the New England Researchers on Dyslexia Society conference, the CUNY Sentence Processing Conference, the Traumatic Brain Injury Alliance Conference and the Michael Tanenhaus Festschrift. **Total outlay: \$22,385.**

8. **Annual "Meet-and-Speak".** We held a 2-day meeting with 14 15-min faculty speakers from both Storrs and UConn Health (predominately recipients of IBACS seed grants), as well as 10 10-min presentations from Graduate Students (2017 IBACS Summer Fellows). The meeting included an internal Keynote speaker 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. In addition, IBACS is partnering with UConn Health to organize a Brain Symposium in June 2018 that will bring together researchers from UConn Health in Farmington and UConn in Storrs. The symposium, intended to facilitate new collaborations, will take place in Farmington, with 28 members of the Storrs community currently registered to attend.

9. **IBACS External Application Review.** This internal review process has been 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. The infrastructure was set up during early 2017 and one external grant application is being mentored through the process. Further details at: <http://ibacs.uconn.edu/ear>
10. **Outreach and related activities.**
 - The Institute published its second Research Digest edited by graduate students (Oliver Sawi & Sahil Luthra). This is similar to a “glossy brochure” and focused on bilingualism and sign language. 200 hard copies were requested by a member of the state legislature, copies were provided to the UConn KIDS Research Recruitment Coordinator and they were also made accessible all across campus. The third Digest is currently being finalized, focusing on neural plasticity. It will be circulated in early Fall. 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 made arrangements for visits from approximately 150 high school students studying Advanced Placement Psychology at two High Schools (E.O Smith Highschool in Storrs, and Middletown High School). These students will visit the Brain Imaging Research Center in May and listen to talks from Graduate Students and IBRAiN Program students, as well as receiving overviews and tours of the MRI, EEG and TDCS technologies.
 - The Institute sponsored a talk by Dr. Tim Miller, from Digital Media and Design, on the art of communicating scientific information. Dr. Miller is co-PI of the NSF National Research Training grant on the Science of Learning. He has also been engaged to produce six short scripted films (2-3 minutes each) describing the research of six members of the Institute. These will be completed over the summer and released on YouTube (with links on the Institute website). University Communications are working on a linked series of science journalism articles describing each individual’s research in more detail.
 - In order to increase awareness and create a physical presence within the UConn community and beyond, the Institute has worked with CLAS Communications to design and purchase cling-on stickers that display the Institute’s wordmark and complementary artwork. Recipients of Institute support will be asked to display the wordmark/artwork on their doors (if faculty) or in their labs and/or other locations (for those who do not have their own offices).
 - 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.

11. **Affiliate membership.** The Institute has a total of 183 affiliates. Excluding the Director, 2 Associate Directors, and 10 Executive Committee members, we have **89 affiliated faculty** (up from 71 last year) and **94 affiliated graduate students** (up from 69 last year) from across 23 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. See Figures for additional details.



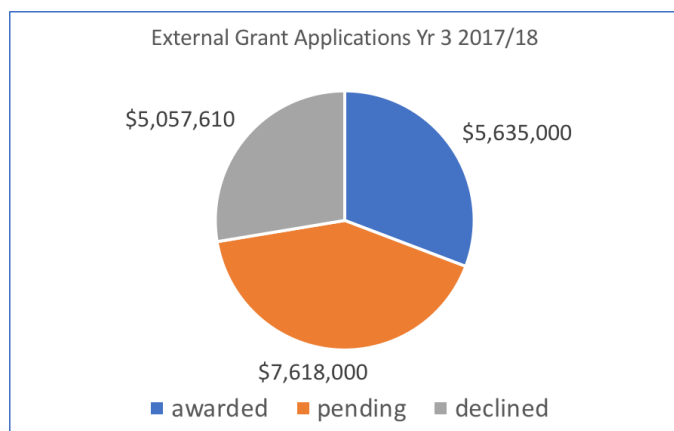
12. **Administrative support.** Brandy Ciraldo has been our full-time administrative assistant since November 2016 (supported 25% by the Department of Psychological Sciences). This position also provides support to the Cognitive Science undergraduate program (admin support and website management). As the administrative assistant, Brandy 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. Brandy also manages our annual Meet-and-Speak, as well as various other activities throughout the year (including the workshops we support).

5. METRICS FOR EVALUATING INSTITUTE IMPACT: April 1st 2017 – April 1st 2018

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.

Grant Activity: We wrote to all Institute affiliates and asked whether they had submitted any grants externally in this reporting period **which had been directly supported by IBACS seed funding** (affiliates were told that "IBACS support includes: 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)") We asked for total amount requested, and total indirects that would accrue to UConn. We also asked whether any such grant applications had been successful.

- Directly supported grants **applied for**: 22 grants totaling \$18.3M
- Directly supported grants **awarded**: 5 grants totaling \$5.6M (indirects \$1.5M)
- Directly supported grants still **pending**: 8 grants totaling approx. \$7.6M (indirects \$1.5M)
- **\$ hit rate** (dollars awarded as percent of dollars applied for): 30% (up from 15% in last year's report)
- grant hit rate (# grants awarded as percent of # grants applied for): 23% (down 1% from last year's report – but see Note 1 below)



Note 1: Last year's report covered a 16-mth period compared with this year's 12-mth period.

Note 2: Hit rates will likely increase: some proportion of pending grants will likely be awarded

Note 3: The **total** Institute expenditure (+ summer commitments) in this same period, for comparison against indirects awarded: \$660K

We have not included extramural graduate fellowship applications. (80% of students eligible to apply for external fellowship funding did so).

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 14 such articles (6 published, 8 under review) identified **for the period 4/1/17–4/30/18**, and 24 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” (34 manuscripts – 20 published or in press) and 31 conference presentations). For various reasons (including the proximity to the end of the semester when we requested this information) 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.

Note: In the next Annual Report (2018/2019) we shall collect data on outputs published/submitted/presented in both 2017 and 2018, and in the report for 2018/2019 outputs published/submitted/presented in both 2018 and 2019. This two-year ‘window’ is a common method to ensure that, across successive years, all appropriate publications are counted. A database entry system that pre-populates the online data collection form with the past year's data (and which makes previous years available for query) is currently in development with University IT Services.

6. CHALLENGES

The Institute received a commitment for continued funding through FY 20/21 (3 additional years) from the offices of: the Provost, the Vice President for Research, the School of Medicine, and the College of Liberal Arts and Sciences. This was received with very significant enthusiasm from the community, and taken as a sign of continued confidence in the brain and cognitive sciences as a major growth area. It was also taken as a sign of confidence in the governance of the Institute and the outcomes generated by the Institute's activities. Going forward, a major challenge will be to determine the Institute's funding model beyond 2021. 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.

Given the uncertainty prior to this welcome renewal, the Director, Executive Committee, and the CLAS Finance Director agreed that we could roll-over saved funds this year to cover core staff costs for next year (in the event that no additional funding would be forthcoming). This would ensure a year's “grace period” in which core staff could be maintained and activities scaled down. Core staff consist of the administrative assistant, the Director's lab manager who also serves BIRC, and the IBRAiN program (6 GAs trained to provide neuroimaging support for PIs who are not already expert in imaging methods or do not have the resource at present to collect pilot data on which basis to generate extramural funding). It was decided, once funding was confirmed, that we would nonetheless operate

this rollover each year. In FY18/19 we shall roll-over funds for these core staff as well as the costs of the lab manager for the Murine Behavioral Neurogenetics Facility (MBNF; see next point).

Related to budgetary planning and reporting, this Annual Report is produced before the Spring seed grant applications are decided. We list these in the appendix, but they are not included in the current year's budget. For planning and reporting purposes, it would be more straightforward to delay production of the Annual Report until closer to the end of the Financial Year, when the outcome of the Spring call for seed grants is known.

A number of additional challenges remain. In FY18/19 the Institute will take over the fiscal management of the MBNF, and the lab manager position associated with this facility will be covered by Institute funds (our previous funding for MBNF GAs will cease). The additional stipend cost to the Institute will come to approximately \$25K per year (over and above our prior contribution to MBNF). In addition, we will invite seed grant applications that specifically make use of the facility. The challenge will be to keep these additional costs within an operating budget that has not increased in Years 4-6 relative to Years 1-3. Nonetheless, we believe that the benefits of diverting funds towards the MBNF and what might be termed (animal) cognitive neurogenetics will outweigh the costs.

At the level of university and state infrastructure there are shorter and longer term challenges. A shorter term challenge is that it continues to be the case that the Storrs campus cannot attract major conferences or workshops (both are good ways to establish visibility and foster collaboration). This is in part due to the lack of transportation infrastructure at state level. There is little we can do to mitigate this. A longer term challenge is that the Institute lacks a physical focus. We are intending to mitigate against this by increasing awareness of the Institute through a branding program that will see increasing prominence of the Institute wordmark/artwork across the Storrs and UConn Health Campuses. Nonetheless, we continue to believe that a physical presence would allow the Institute to progress to the next level, allowing a physical intersection of the communities across the computational, behavioral, cognitive, and bench neurosciences. This would enable a whole that is many times the sum of its parts, and a presence that would be attractive to external funders. We believe that the current activities are 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.

Finally, we have been offered a gift whose monetary equivalent would be an endowment of in excess of \$150,000. The owners of a daycare center (providing daycare facilities for babies from six weeks, infants, and young children) offered to waive the fee for 10 weeks' childcare for up to two affiliated graduate students per year. The Institute's Executive Committee had approved, in principle, matching funds, allowing a total of 20 weeks for each student (to support up to two babies from weeks 6 to 26 – i.e. their first 6 months). That is a reflection of the depth of concern regarding the difficulties of mothers (and parents more generally) returning to science after a new baby: This would enable graduate students to more easily return to their work during the first 6 months of a new baby. To our regret, we discovered through discussion with the UConn Foundation and the Business Services Center at CLAS that there are impediments to accepting this gift. This is an ongoing discussion, and we have reached out to the Office of Faculty and Staff Labor Relations to see whether there is any way at all in which the University could take advantage of this generous offer (the graduate student union has no objections). Childcare is an important issue, recognized by AAUP and GEU, for example, who provide (small) subsidies for their members. Graduate students receive that subsidy (insufficient to pay for full time care) if they are on a TA or GA contract at the time of the childcare (many are not on such contracts over the summer). While this scheme would only have afforded two students' (limited) childcare, it would have sent a strong signal that may have encouraged other units, and UConn more generally, to consider how to approach this issue. In an age of increasing inclusivity and diversity, of increasing numbers of groups "Women in..." at UConn, and "Woman & Philanthropy" at the UConn Foundation, it is important that we consider carefully the positive impact that such gifts afford, and do what we can to facilitate such philanthropy.

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 (to nearest \$1,000):

Initial budget, July 1st 2017 – June 30th 2018:

\$350,000 from Tier 1 funding
 \$150,000 from VPR
 \$208,717 from CLAS
 \$20,000 from NBL program (for joint summer fellowships)
 \$82,248 misc rollover
\$15,000 recouped funds
\$ 825,965 total

Expenditure:

\$773,037¹

Commitments²:

\$47,000

To carry forward into AY 2018/19³:

\$5,928

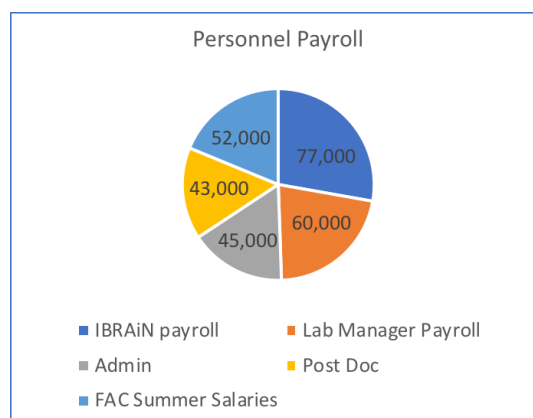
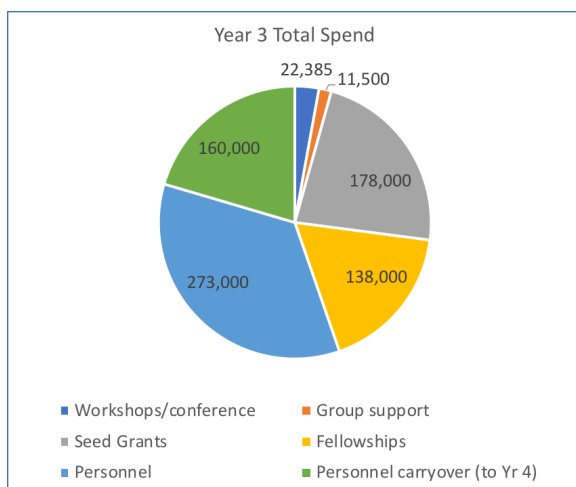
We anticipate for FY 2018/19 the following funding:

Provost's Office:	\$350,000
OVPR:	\$100,000
School of Medicine:	\$50,000
<u>CLAS:</u>	<u>\$110,000</u>
TOTAL	\$610,000

¹ This includes \$160K carried forward into FY18/19 to guarantee funds in FY18/19 for core staff: Admin Assistant (Ciraldo), 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 Commitments include reserved funds for Summer Grad fellows and IBRAiN fellows.

³ Carry forward is underspend on CLAS account that will be available to the Institute in FY18/19



8. CASE STUDIES: INSTITUTE-SUPPORTED COLLABORATIONS

Here, we very briefly outline 2 case studies.

1. “The Cognitive Bladder”. This first case study describes a continuing collaboration between the Institute, InCHIP, and UConn Health (specifically, the Center on Aging and the Department of Urology). It highlights the Institute’s ability to foster cross-campus research and to integrate with UConn Health. It also highlights a unique aspect of the brain and cognitive sciences here at UConn: Our ability to link high level cognition to low-level visceral control – from mind to brain to viscera.
2. Eye movements at the Connecticut Science Center. The second case describes an equipment award which is allowing Institute affiliates to use eye movements as a measure of reading ability, and more uniquely, to use this equipment at the Connecticut Science Center, both to collect data from a larger and more diverse population than would be reached solely from Storrs, but also to take our research into the community; educating the public on research methods and findings that are relevant for understanding reading development.

The Cognitive Bladder. This is an ongoing project that was initiated in Year 1 of the Institute’s activities. It capitalizes on work by Dr. Phil Smith M.D. (Dept. of Urology) and Dr. George Kuchel (Director, Center on Aging), with input on translational potential from Amy Gorin (incoming Director, InCHIP) and Gerry Altmann (Director, IBACS).

In Year 1, the Institute supported the successful application of a K76 award to Phil Smith. Smith has data suggesting that “overactive bladder” (or “bladder urgency”) is due to miscalibration of signals in the brain, rather than a problem at the bladder. In Year 2, Amy Gorin joined the group as we discussed how to move forward on one particular front: It is well known anecdotally that the feeling of urgency in healthy adults (and children) can be “forgotten” for an hour or two, but then the feeling can return suddenly and intensely, accompanied by the memory of having previously experienced that urgency (and annoyance at its return). Our presumption is that some kind of distraction switches attention away from the (mis)perceived sensations from the bladder (“misperceived” because of that miscalibration). Our goal is to capitalize on this phenomenon as a means to remediating chronic suffering of urgency. A first step was to establish what the incidence and experience of bladder urgency is, and in what populations (most of the data is clinic-based, but the incidence of overactive bladder is believed to be vastly more prevalent in the general population than it is in those who present at clinics). To this end, we identified a student on the Master’s course in Public Health, advised by Dr. Jennifer Cavallari, who is interested in this topic. Following discussion among the PIs (Smith, Kuchel, Gorin, Altmann), the IBACS executive committee, and Dr. Cavallari, IBACS and InCHIP agreed to fund a scholarship for this student to support her studies in this field. She surveyed the literature on incidence and prevalence of lower urinary tract symptoms (LUTS), and of urgency more specifically. Apart from this comprehensive literature review, she also provided a bibliography of relevant references, as well as a paper on LUTS and social stigma (which prevents sufferers from reporting their symptoms or seeking appropriate care). The review is the first step towards identifying how best to develop a questionnaire that could collect information about urgency and, critically for the team, the experience of forgetting, but subsequently remembering, that urgency.

Meetings between the PIs and the funded student are ongoing. The long-term goal is to explore methods of remediating the sensation of urgency, potentially capitalizing on the forgetting phenomenon. These may include cognitive interventions, neuromodulation, or both. A shorter-term goal will be to attempt to identify the kinds of distractions that result in the sensation of urgency abating (and being temporarily “forgotten”). This will likely be the goal of the next phase of the research, scheduled for AY18/19.

Eye movements at the Connecticut Science Center. Eye tracking is a powerful and flexible tool that can be utilized to measure a broad range of behaviors including spoken and written language processing and visual attention. How, when, and where the eyes move during spoken and written language processing can inform accounts of how the mental “content” corresponding to “comprehension” is built up as language unfolds. For example, eye movements appear to anticipate what might be referred to next in the language (the eyes might move to an edible object in a visual scene as the participant hears “the boy will eat...”), and this tells us that sentence comprehension is inherently predictive and “incremental” (that is, content is built up as each new bit of the sentence unfolds through time). These behaviors are of great interest to basic and translational scientists across a broad range of disciplines including psychology, neuroscience, education and even marketing.

Most eye tracking systems use large-table mounted cameras and multiple desktop PCs. This setup potentially limits flexibility of study designs and populations that are eligible for study inclusion. An IBACS Seed Grant allocated in the Fall 2017 allowed for the acquisition of a portable eye tracking system. This system is easily transported, and has enormous utility for working with special populations, including children, the elderly, and people with acquired or developmental disorders. Due to the flexibility of this new tool, we are able to collect data on this project at the *Connecticut Science Center* through their **Living Lab** program. The Living Lab program is a national collaboration between scientists and museums that allow for researchers to collect data “in the wild” at the museum. Conducting studies at the Science Center has afforded the opportunity to acquire data on a large, heterogeneous group of children in a very short amount of time. Moreover, conducting research in an environment like the *Connecticut Science Center* has provided opportunities for community outreach, specifically sharing science with the public of the greater Hartford area.

The portable eye tracking system is currently being used to investigate for the first time the on-line dynamics of spoken word recognition in pre-reading children using completely parallel techniques with adults and literate children. Preliminary data suggests that, counter to prevalent theories, pre-reading children show similarly incremental processing of spoken words as adults.

These are just two of the many research 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, and Altmann/BIRC lab manager
7. Journal articles describing IBACS-supported research
8. Meet and Speak Program, and post-event feedback

APPENDIX 1

BUDGET SUMMARY

STARTING BUDGET \$825,965 (see Revenue entry below)

Expenditure and Commitments

notes

meetings

Cognition & Dynamics Workshop	\$400
NERDY Dyslexia Conf	\$1,000
Neuroscience at Storrs	\$300
INChip Lecture Series	\$1,000
Science & Story	\$560
LangFest	\$5,000
CUNY Conference	\$2,000
Semantic Interpretation Conf	\$3,000
Traumatic Brain Injury Conf	\$1,500
Intel Deep Learning Workshop	\$125
Tannenhau Festschrift	\$2,000
Grant-Writing Workshop (proj.)	\$500
Meet n Greet (proj.)	\$5,000

group support

Logic Group (grant)	\$6,450
ECOM (grant)	\$5,000

seed grants & fellowships

Fall 17 & Spring 18 grants (proj.)	\$166,500
4 IBRAiN Summer 18 fellowships	\$20,000
UConn Health Fellowship	\$5,000
Fellowship residual Summer 17	\$9,000
19 Grad fellowships Summer 18	\$79,000
13 UG fellowships	\$25,000

\$5K from InCHIP also

misc.

office supplies	\$1,220
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personnel

IBRAiN Fall 2017/Spring 2018	\$96,394
Lab Mgrs Fall 2017 /Spring 2018	\$42,670
Core staff salary carryover	\$160,000
Admin (75%)	\$45,672
post-doc(33%)	\$43,225
Directors' summer salaries:	\$45,521

Total Spend to date **\$773,037**

Total Remaining Commitments **\$47,000**

TOTAL uncommitted **\$5,928**

Revenue (\$825,965)

\$150k	VPR
\$350k	Provost
\$208,717	CLAS
\$82,248	underspend Yr 2
\$20,000	NBL
\$15,000	seed recoup

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 2017

Lead PI	Dept.	Title	Award Amount
Bernard Grela	SLHS	Conceptual Organization in Language Impairment	\$4,000
Ed Large	PSY	Characterization of neural & electrophysiological correlates of pitch perception	\$22,214
Akiko Nishiyama	PNB	The role of NG2 cells in the neural network	\$12,821
Ephraim Trakhtenberg	UConn Health	Novel approach for attenuating myelin-associated inhibition of axon regeneration	\$23,452

FALL 2017

Gerry Altmann	PSY	The Science of Understanding Workshop	\$15,000
Dorit Bar-On	PHIL	Expression, Communication and the Origin of Meaning Group Support	\$5,000
Damir Dzhamfarov	MATH	Logic Group Support	\$6,450
Roeland Hancock	PSY	Intergenerational Neuroimaging of Language and Reading Networks	\$9,000
James Magnuson	PSY	Shared Portable Eye Tracker	\$15,000
David Martinelli	UConn Health	Discovery of the auditory function of the outer hair cell afferent synapses	\$25,000
Harry van der Hulst	LING	Pictorial Semantics and Iconicity	\$3,000

APPENDIX 3
IBACS GRADUATE SUMMER FELLOWSHIPS
 (IN CONJUNCTION WITH NBL GRADUATE PROGRAM)

Name	Department	Advisor
Ali, Sumbleen	Human Development/Family Studies	Preston Britner
Bryant, Lauren	Psychological Sciences	Kimberly Cuevas
Camera, Sarah	Speech, Language & Hearing Sciences	Erika Skoe
Coulter, Kirsty	Psychological Sciences	Deb Fein
De Bari, Ben	Psychological Sciences	James Dixon
Ekves, Zak	Psychological Sciences	Gerry Altmann
Flament-Fultot, Martin	Psychological Sciences	James Dixon
Fuhrmeister, Pam	Speech, Language & Hearing Sciences	Emily Myers
Krass, Kyra	Psychological Sciences	Gerry Altmann
McKay, Timothy	Human Development/Family Studies	Ryan Watson
Naveh, Natali	Molecular and Cellular Biology	Michael O'Neill
Nguyen, Emma	Linguistics	Jon Sprouse
Peters, Emily	Psychological Sciences	Chi-Ming Chen
Rainear, Adam	Communications	Kenneth Lachlan
Simmons, Elizabeth	Psychological Sciences	James Magnuson
Wasserman, Charles	Psychological Sciences	Ed Large
Wyckoff, Emily	Psychological Sciences	Amy Gorin
Yang, Xiao	Psychological Sciences	Chi-Ming Chen
Yearling, Emily	Psychological Sciences	Adam Sheya

APPENDIX 4**IBACS UNDERGRADUATE RESEARCH FELLOWSHIPS**

Name	Department	Advisor
Bachoy, David	Psychological Sciences	Eiling Yee
Briody, Patrick	Physiology and Neurobiology	Joanne Conover
Cubeta-Yonamine, Haruki	Psychological Sciences	Adam Sheya
Delasanta, Lana	Psychological Sciences	Ed Large
Fernandez, Mirella	Psychological Sciences	Robert Astur
Kumar, Saurabh	Physiology and Neurobiology	Joanne Conover
Lee, Derek	Physiology and Neurobiology	Geoffrey Tanner
Makol, Rohit	Biomedical Engineering	David Martinelli
Naparsek, Jacob	Physiology and Neurobiology	Alex Jackson
Rafferty, Seamus	Psychological Sciences	John Salamone
Sharma, Neil	Physiology and Neurobiology	Geoffrey Tanner
Sklenarik, Skylar	Psychological Sciences	Robert Astur
Vali, Krishna	Physiology and Neurobiology	Geoffrey Tanner

APPENDIX 5**IBACS BIRC RESEARCH ASSISTANTSHIPS IN NEUROIMAGING (IBRAIN)**

Name	Department	Advisor
Davis, Charles	Psychological Sciences	Eiling Yee
Li, Monica	Psychological Sciences	Jim Magnuson
Michaels, Timothy	Psychological Sciences	Chi-Ming Chen
Prystauka, Yanina	Psychological Sciences	Gerry Altmann
Ryherd, Kayleigh	Psychological Sciences	Nicole Landi

IBACS-INCHIP FELLOWSHIP, CENTER ON AGING

Franzen, Nina	Community Medicine	Jennifer Cavallari
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APPENDIX 6

IBACS AFFILIATED GROUP REPORTS

- A. BIRC IBRAIN PROGRAM** (submitted by Dr. R. Hancock)
- B. CSSERL** (submitted by Dr. J. Magnuson)
- C. MBNF 2015-2018** (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 FY17. Students participate in three main activities:

Training

IBRAiN students receive formal training in neuroimaging methods, design, and analysis. The scope and schedule of the training program was prioritized by surveying the needs of the UConn neuroimaging community.

The fellows also receive more generalized scientific training to prepare them for the increasing need to 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). Preregistration (e.g. for the toy fMRI project)

This training will be formalized beginning Fall 2018 as a PSYCH special topics graduate course.

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), Buck (COMM), Burke (PSYCH), Coelho (SLHS), Dutta (ECE), Eigsti (PSYCH), Kearns (Neag Ed)/Rueckl (PSYCH), Large (PSYCH), Lepley (Kinesiology), Pierce (BME), Theodore (SLHS).

In addition to hand-on research support, the fellows also contribute to the BIRC wiki, a central documentation resource for the BIRC facilities, and a curated bibliography of methodological and review papers relevant to BIRC researchers.

Outreach

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

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

Director: James Magnuson

Charlie **Wasserman** was employed in an IBACS-funded RAsip for 15 hours / week fall and spring. Yi **Wei** was employed in an IBACS-funded RAsip for 5 hours / week fall and spring. Here, we refer to them as the "eBRAIN RAs"; "e" stands for "electrophysiology". We can best summarize their activities by placing them in five 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:

- Maintaining the online calendar system.
- Administering the website.
- Administering the online calendar system for equipment and room reservations (the RAs devoted considerable time to researching a better system and then installing and deploying a new, improved system).
- 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.
- Managing laundry services (towels).
- Monitoring consumables (e.g., electrode contact gel, shampoo, syringes) and ordering supplies when needed.
- The eBRAIN RAs are compiling a variety of lab manuals to help future eBRAIN RAs and lab users.
- Administering 7 computers (keeping operating systems and software up to date, monitoring data storage, installing user-requested software).
- The eBRAIN RAs met with Magnuson nearly every week to discuss CSSERL operations.
- **Total time / week = 7 hours**

Support

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

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

Outreach

The eBRAIN RAs devoted substantial time to EEG/ERP community building.

- Both were active in a weekly EEG/ERP interest group that emerged from the Fall, 2017 EEG course; it met weekly in Spring, 2018 and will reconvene in Fall, 2018.
- The eBRAIN RAs led students in that group in drafting a poster ("An invitation to cognitive neuroscience: Electroencephalography (EEG)") that was presented at the Spring, 2018 Language Fest, to spread the word about CSSERL.
- The eBRAIN RAs are working with Magnuson to develop a series of accessible presentations on EEG that we aim to present to several groups around campus (PSYC, SLHS, LING, Education, HDFS, BME, Business, PHIL); the aim is to provide straightforward explanations of what EEG/ERP is/are, illustrated with examples from each constituency's field (e.g., EEG on language disorders for SLHS, EEG used in experimental Philosophy for PHIL).
- **Total time / week = 1 hour**

Training

- Ad-hoc training matched to user need and experience levels; ~20 users trained from 6 departments or divisions (Language & Cognition; Clinical Psychology; Developmental Psychology; SLHS; LING). Sessions are scheduled on an ad-hoc basis, with 1-5 trainees; we get the weekly average by dividing the total time by 28 (14 weeks x 2 semesters). *0.75 hours / week*
- eBRAIN RAs also assisted with a Special Topics course (Fall, 2017) for which Jim Magnuson was the instructor of record; there were 8 PhD students (from PSYC, SLHS, and LING) and 1 faculty auditor (from PNB); in total, this course used approximately 60 hours of Wasserman's time and approximately 18 hours of Wei's time. Averaged over the two semesters, this would be: *2.75 hours / week on average*
 - The course was very successful, and led to enhanced skills among students and increased the number of IBACS-affiliated PhD students able to use EEG.
 - The course was divided between lecture/discussion and hands-on EEG training (in acquisition and analysis).
 - Magnuson was responsible for ~90% of lecture/discussion.
 - Wasserman provided 10% of lecture/discussion and ~90% of hands-on training.
 - Wei provided about 10% of the hands-on training.
- Jon Sprouse from LING and Magnuson intend to co-teach a revamped, hands-on EEG course in Fall, 2018; we plan for the eBRAIN RAs to provide approximately 5-6 hours of support to this class.
- ***Total time / week = 3.5 hours***

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 45 minutes per week to research.

Total time / week = 1.5 hours

Labs that have benefited from eBRAIN activities this year:

Altmann (PSYC), Halgunseth (HDFS), Landi (PSYC), Large (PSYC), Magnuson (PSYC), Myers (SLHS), Skoe (SLHS), Sprouse (LING), Theodore (SLHS), Wurmbrand (LING), and Yee (PSYC).

Summary statement. 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. We have already advertised the hands-on course for the fall (to be co-taught by Sprouse and Magnuson), and have had responses from interested students and faculty from several new parts of UConn: Neag (Education), Philosophy, HDFS, and Social Psychology, as well as interest from SLHS, Language & Cognition, Developmental Psychology, and Clinical Psychology. IBACS funding is instrumental in moving CSSERL towards its potential as a true resource for faculty and students across the university.

C. MBNF 2015-2018

Director: R. Holly Fitch

Mission Statement: Past and Future

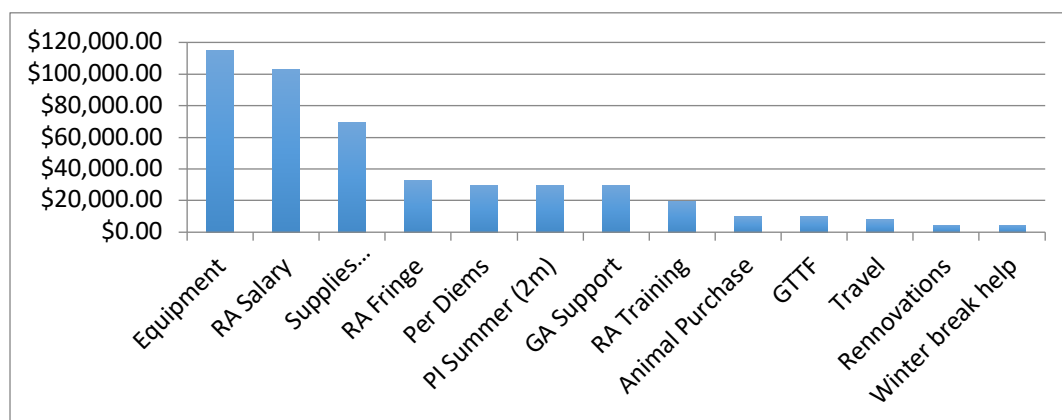
The **MBNF** provides a core behavioral assessment (phenotyping) facility for PIs at UConn Storrs and UCHC, and promotes inter-disciplinary expansion of research through behavioral phenotyping of novel genetically modified mouse models. Whereas equipment and training costs for novel behavioral work is *inefficient and duplicative* for individual PIs, a shared core facility provides necessary services, expertise, and equipment at subsidized cost. This allows PIs to expand research lines into novel areas, including clinically relevant translational behavior that is attractive to funding agencies, and to collect pilot data that would be difficult or impossible to obtain independently.

The MBNF opened in a 2-room suite in the basement of BOUS (083; Jan 2016), and is currently expanding into a third adjoining room (083A). This has been possible with the generous support of BNS Chair J. Salamone and Dept. Head J. Green. The BOUS vivarium has accepted transfers of mice from PPB and elsewhere, allowing for assessments to be performed freely in the MBNF. PIs either transfer animals back to the home vivarium at the completion of testing, or come to BOUS to euthanize animals under experimental conditions to harvest tissue as needed. Except for the fact that re-derivation at the GTTF has been required in several cases due to the high-exclusion health status of the BOUS vivarium, all work has proceeded without incident and under full IACUC and IBC approval.

At the end of the fiscal year, MBNF will be shifting under the financial and governing umbrella of IBACS. It is the belief of both MBNF Director Fitch and IBACS Director Altmann that this move will provide funding stability and support, consistent oversight and governance, and shared resources for publicity, data-sharing, and promotion of novel inter-disciplinary collaborations that would not be possible otherwise. It is expected that the move will be mutually beneficial to IBACS by providing a functional link between disparate disciplines, specifically attracting basic researchers working at the genetic, cellular and circuit levels to interface with researchers at cognitive and clinical levels. An effective interface between these perspectives is crucial to inter-disciplinary success.

Costs

Over the period June 2015 to present, the MBNF received **\$450,000** from the Office of the Provost, and **\$75,000** for additional equipment in Year 1 from CLAS. We have \$45,000 remaining, including \$25,000 encumbered to cover half of the expense of a new RA (period July 2018 - May 2019), and the remainder to cover *per diems* that run in arrears and complete ongoing projects in the upcoming year (Year 4). These funds will be transferred into the IBACS operating budget at the end of the fiscal year (June 30, 2018). Of the \$475,000 funds expended to date, expenses occurred in the following categories:



Full details of costs available on request.

Metrics of Success

By virtually all measures, the MBNF has been highly productive over the past 3 years, and continues to grow in visibility and user-base. A brief overview on metrics of success is provided below.

- 1) **Students trained (undergraduates).** Sixteen (16) undergraduates performed independent study in the MBNF, including completion of 3 Honors Theses, 3 SURF awards, and multiple OUR and Psych Dept awards. full listing on request.
- 2) **Students trained (graduate).** Four (4) BNS PhD candidates have conducted major research projects in the MBNF, leading to completion of 1 PhD (Amanda Rendall, July 2017), and near-completion of 3 MS Degrees (Peter Perrino, Rose Presby, Jen-Hau Yang; expected summer/fall 2018).
- 3) **RA career development.** The students hired to work in the MBNF as fulltime research assistant for a 1-year period have progressed to significant career opportunities on departure. Peter Perrino (2015-16) is now a Neuroscience PhD candidate at UConn. Nicholas Buitrago (2016-17) is a Masters Neuroscience candidate at University of Hartford. John (Riley) Pflomm (2017-present) will start UConn Medical School (Farmington) in August 2018. Our new RA Margaret Balogh (starting July 2018) is a PNB major (May 2018), and plans to apply to graduate programs for fall 2019.
- 4) **PIs served - userbase.** From 2015-present, the MBNF has performed extensive (multi-month) projects for eight (8) UConn PIs. Our first external user was **Rahul Kanadia** (PNB). Behavioral assessments performed on 2 large cohorts of genetically modified mice provided novel data for an RO1 grant application (in revision), and form a portion of the PhD thesis for Marybeth Baumgartner. Next we performed behavioral assessments on mice with a maternally imprinted gene associated with ASD and social deficits in Turner syndrome for **Mike O'Neill** (MCB). Data generated form part of PhD research for Alicia Liu and Natali Naveh, and are included in an RO1 application under review at NIH. We also performed evaluations on mice with transient knock-down of NG2 oligodendroctye progenitor cells for **Akiko Nishyama**. The behavioral results supported her theories about NG2 cell function, and were used to obtain several large external awards. Nishyama determined that the findings were sufficiently pivotal to support acquisition of behavioral equipment for her own lab (with guidance from the MBNF) to pursue the findings. We are currently performing behavioral assessments on mice with pharmacologically activated DREADDs in lateral hypothalamic neuronal sub-populations for **Alex Jackson** (PNB). Jackson currently has an NIH grant but is gathering data for a renewal. Additional projects include ongoing assessment of COMT knock-in mice for effort-related cognitive responding (**John Salamone** and **Nicole Landi**) supporting a grant in preparation. Assessments are also planned for *Kiaa* KO and *Dcdc2* KO mice, in collaboration with an Italian group that studies dyslexia (re-derivation of frozen embryos underway). We are also involved in a collaborative *Ube3a* project with **Stormy Chamberlain** (UCHC), specifically to develop a mouse model of Angelman syndrome. These data will support revision and resubmission of a funding application to the Angelman Syndrome Foundation. Further data has been collected on *Usher2a* mice, in collaboration with Dianne Newbury (Oxford University). Those results are under preparation for publication, and will support a funding application to the Usher Syndrome Foundation. We are also currently running C57 male mice on novel cognitive assessments using the touch-screen stations, in efforts to expand the behavioral assessment and higher-order applications of

phenotyping capacities for human processes including cognition, language, and disorders in these functions. Novel program development may include technology transfer to the supplier (Lafayette Instruments), expanding their scientific offerings in the private market. Additional projects are currently under development for **Maxim Volgushev** (UConn/BNS), who recently received an REP to perform behavioral evaluation on mice with a genetic KO for A1 receptors (mice currently being re-derived from cryo); and **James Li** (UCHC), for whom we are planning behavioral assessment on mice with a conditional cerebellar KO of *Foxp2*. These projects (completed, ongoing and planned) clearly demonstrate that continued investment in the MBNF is productive, and beneficial to the UConn community.

- 5) **PIs served – Scholarly products (posters, talks, internal grants, papers).** During Jan 2016 - present, the MBNF has been acknowledged in more than 50 talks and posters, 5 internal grants, and 9 peer-reviewed manuscripts (published (6) or in preparation (3)); full listing on request.
- 6) **PIs served – Letters of Support, funding applications.** The Director has written Letters of Support (LOS) for grant applications by several UConn faculty, resulting in 2 awards (Tzingounis, Nishyama) and 5 proposals under revision or review (Salamone, O'Neill, Kanadia, DeBlas, Fitch; full listing on request).
- 7) **Other – Sponsored talks and events.** The MBNF Director has delivered several talks and introductions to the MBNF facilities at various events and venues, including an Open House in Dec 2015. Another Open House is currently being planned for Fall 2018 to re-introduce faculty to expanded MBNF facilities. (full listing on request).

D. ECOM

Director: Dorit Bar-On

1. Directly Funded

Speaker Series: 20-30 attendees each, with representation from departments of philosophy, psychology, communications, linguistics, and anthropology

- December 8, 2017: Katherine McAuliffe (Psychology, Boston College)
- January 26, 2018: Joshua Knobe (Linguistics/Philosophy/Psychology, Yale)
- March 2, 2018: Jacob Beck (Philosophy, York University)
- May 4, 2018: Josh Armstrong (Philosophy, UCLA)

Workshop: April 20-21, 2018: “Emotions and Expressions”: 7 invited speakers, 4 contributed papers and 45 participants with representation from across the United States and internationally including participants representing philosophy, psychology, cognitive science, communications and anthropology

ECOM will award **3 summer fellowships** (totaling \$6,000) to support ECOM members’ research. Bar-On to apply for university funds to establish regular competitive fellowships for collaborative research.

2. Indirectly supported

Bar-On and Ochs published a joint paper in *Teorema* (Feb 2018) on inner speech and self-knowledge
Bar-On has published 5 papers on ECOM-related topics (3 appeared, 2 forthcoming)

Talks by ECOM Director and ECOM Members

- May 2018: “Speaking Your Mind in Your Mind: Inner Speech and Self-Knowledge” (with Jordan Ochs), Conference on Self-Knowledge, Stirling University UK, AND Edinburgh conference on the Structure of Epistemic Warrant
- April 2018: “Expression, Communication, and Origins of Meaning: A Philosophical Perspective”, Penn State Cognitive Science
- February 2018: “Crude Meaning, Brute Thought”, University of Edinburgh UK
- February 2018: “Crude Meaning, Brute Thought”, Philosophy Colloquium, University of Memphis
- November 2017 “Expression, Communication, and Origins of Meaning: A Philosophical Perspective”, Tel Aviv University, Israel
- October 2017: “‘I’, My Self, and My Mental States”, Keynote, Hammond Society Graduate conference, Johns Hopkins; *Two ECOM members presented papers (selected anonymously) at this conference – Jenelle Salisbury and Ryo Tanaka*
- June 2017: “Neo-Expressivism, Self-Knowledge, and the Nature of Mind”, Epistemology-first Philosophy of Mind, June 19-20, Oxford, UK
- June 2017: 3-day Masterclass on Bar-On’s work, Spanish Society for Analytic Philosophy, (with select student applicants from around Spain), Madrid, Spain
- June 2017: “Origins of Meaning”, University of Seville, Spain
- June 2017: “Inner Speech and Self-Knowledge: A Neo-Expressivist View”, Workshop on Belief, Self-Knowledge, and Transparency, University of Oviedo, Spain
- Jordan Ochs (ECOM coordinator) gave 3 talks on her dissertation work.

Miscellaneous:

- reading group on Millikan’s new book this summer
- Bar-On has signed a contract with Oxford University Press to publish a manuscript titled *Expression, Communication, and Origins of Meaning*.
- Bar-On applied for a UCHI fellowship. (Successful)
- Bar-On applied for an ACLS fellowship for collaborative research. (Unsuccessful)
- Ochs applied for an ACLS and a UCHI dissertation fellowship. (Unsuccessful)

E. IBACS LAB MANAGER

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: 11 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), 5 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 emojoinal: Facial emojis as nonverbal cues for emotion and facial mimicry	Anne Oeldorf-Hirsch	Communication
†TBD	Anne Oeldorf-Hirsch	Communication
†Language-mediated eye movements and cochlear implants	Rachel Theodore	SLHS
†Eye-tracking study for reading equations	Thomas DeFranco	NEAG

APPENDIX 7

PUBLICATIONS:

April 1st 2017 – April 30th 2018

Recipients of seed grants, and affiliate members, were asked to submit articles and book chapters published since April 1st 2017 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

- Baumgartner, M.**, Olthof, A.M., Hyatt, K., Aquino, G.A., Lemoine, C., Al Seesi, S., Sturrock, N., Nguyen, N., Drake, K.D., Kanadia, R.N. (2017). Minor spliceosome inactivation in the developing mouse cortex causes self-amplifying radial glial cell death and microcephaly. *BioRxiv*. doi.org/10.1101/182816.
- Fujita, A.**, Bonnavion, P., Wilson, M.H., **Mickelsen, L.E.**, de Lecea, L. and **Jackson, A.C.** (2017). Hypothalamic tuberomammillary nucleus neurons: electrophysiological diversity and essential role in arousal stability. *Journal of Neuroscience*, Sep 27; 37(39):9574-9592. *Equal contribution, †equal contribution. doi: 10.1523/JNEUROSCI.0580-17.2017
- Lopez-Felip, M. A.**, **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. doi.org/10.1016/j.humov.2018.03.013
- Tal, I., **Large, E. W.**, Rabinovitch, E., **Wei, Y.**, Schroeder, C. E., Poeppel, D., & Zion Golumbic, E. (2017). Neural Entrainment to the Beat: The “Missing Pulse” Phenomenon. *Journal of Neuroscience*, 37 (26), 6331– 6341. doi: 10.1523/JNEUROSCI.2500-16.2017.
- Tang-Schomer, M.D.** (2018). 3D axon growth by exogenous electrical stimulus and soluble factors. *Brain Research*, 1;1678:288-296. doi: 10.1016/j.brainres.2017.10.032.
- Todd, K.L.**, Brighton, T., Norton, E.S., Schick, S., Elkins, W., Pletnikova, O., Fortinsky, R.H., Troncoso, J.C., Molfese, P.J., Resnick, S.M., **Conover, J.C.** (2018) Ventricular and Periventricular Anomalies in the Aging and Cognitively Impaired Brain. Alzheimer’s Disease Neuroimaging Initiative. *Frontiers in Aging Neuroscience*. J12;9:445. doi: 10.3389/fnagi.2017.00445.

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

- Drouin, J. R.**, & **Theodore, R. M.** Lexically guided perceptual learning is robust to task-based changes in listening strategy. *Journal of the Acoustical Society of America*.
- Flanagan, E. G., & **Theodore, R. M.** Determinants of voice recognition in monolingual and bilingual listeners. *Bilingualism: Language and Cognition*.
- Mickelsen, L.E.**, Bolisetty, M., Chimileski, B.R., **Fujita, A.**, Beltrami, E., Robson, R. & **Jackson, A.C.** Single cell transcriptomic analysis of the lateral hypothalamic area reveals molecularly distinct populations of inhibitory and excitatory neurons. *Nature Neuroscience*
- Monto, N. R.**, & **Theodore, R. M.** Attention modulates lexically guided perceptual learning for letter perception. *Attention, Perception, & Psychophysics*.
- Perrino, P.A.**, **Rendall, A.R.**, Newbury, D.F., **LoTurco, J.J.**, Buscarello, A.N, **Fitch, R. H** (2018). Behavioral assessment of USH2A KO mice.
- Tang-Schomer, M.D.**, Jackvony, T., & **Santaniello, S.** Electrical Stimulation to Evoke Synchronized Oscillations of Cortical Neural Networks in Vitro. *Frontiers in Neuroscience*.
- Theodore, R. M.**, & ***Monto, N. R.** Distributional learning for speech reflects cumulative exposure to a talker’s phonetic distributions. *Psychonomic Bulletin & Review*.

Theodore, R. M., *Monto, N. R., *Orena, A. J., & Polka, L. The native language benefit for voice recognition is not contingent on lexical access. *Journal of Experimental Psychology: Learning, Memory, and Cognition*.

3. Conference Presentations and Abstracts Directly Supported by IBACS

- Brooks, T. R., **Dixon, J. A.**, & Frank, T. D. (2017, July). Compatibility Effects in Bistable Perception of the Necker Cube. Paper presented at the biennial meeting of the International Conference on Perception and Action, Seoul, Republic of Korea.
- Chin, I.**, Green, M., **Landi, N.**, Irwin, J., **Naigles, L.** (2017, April) Variable Sources of Children's Ability to Interpret Different Implicatures. Poster presented at the Biennial Meetings of the Society for Research in Child Development, Austin, TX.
- Chin, I.**, Green, M., **Landi, N.**, Irwin, J., **Naigles, L.R.** (2018, January) Different sources underlie children's ability to interpret different pragmatic devices. Poster presented at the Linguistics Society of America, Salt Lake City, UT.
- Davis, C. P., Joergensen, G.**, Boddy, P., Dowling, C., & **Yee, E.** (2017, November). Get your head out of the clouds: Performing a visual task makes it harder to think about art than music. To be presented at the 25th Annual Workshop on Object Perception, Attention, and Memory, Vancouver, BC, Canada.
- Davis, C. P., Joergensen, G., & Yee, E.** (2017, November). Silence! An auditory task disrupts processing of auditorily experienced concepts. To be presented at the 58th Annual Meeting of the Psychonomic Society, Vancouver, BC, Canada.
- Davis, C. P.**, Paz-Alonso P. M., **Altmann, G. T. M.**, & **Yee, E.** (2018, March). Encoding of episodic context in abstract and concrete concepts. Presented at the 25th Annual Meeting of the Cognitive Neuroscience Society, Boston, MA.
- Dhaim, A. & Sheya, A.** (2017, August). The Dexterity of Action and Interpersonal Coordination. Presented at The Guy Van Orden UCONN Workshop on Cognition and Dynamics, XII, Storrs, CT.
- Dixon, J. A., De Bari, B.**, Kondepudi, D., & Kay, B. A. (2017, July). Learning in Non-living Dissipative Systems. Paper presented at the biennial meeting of the International Conference on Perception and Action, Seoul, Republic of Korea.
- Felip, M., & Dixon, J. A.**, (2018, April). Moving from Individual to Collective Complex Coordination Dynamics: Theoretical and Methodological Challenges. Talk presented at the Northeast Regional Conference on Complex Systems, Binghamton, NY.
- Healy, R., Serino, J., **Davis, C. P., Joergensen, G., & Yee, E.** (2018, March). Understanding "thunder" is more difficult than "rainbow" when performing an auditory task. Presented at the 25th Annual Meeting of the Cognitive Neuroscience Society, Boston, MA.
- Jackvony, T., **Tang-Schomer, M.D.**, Kaplan, D., & **Santaniello, S.** (2017, October). Electrical Stimulation for Neuronal Activation and 3D Growth in Vitro. Biomed Eng Soc Annual Meeting (BMES 2017), Phoenix, AZ.
- Jones, M., Meagher, C., Figueiredo, M., Fein, D., **Skoe, E., & Naigles, L.** (2017, April) Relationships between Auditory Brainstem Responses and Early Language in Typically Developing Children and Children with ASD. Poster presented at the Biennial Meetings of the Society for Research in Child Development, Austin, TX.
- Lee, D.C., Vali, K.**, Baldwin, S.R., Fequiere, J. R., Frageau, J. C., Longo, F., Madhoun, S., O'Toole, T., Ruiz, M.G., & **Tanner, G.R.** (2018, April). Dietary Effects on TBI-Induced Aggression in *Drosophila*. Frontiers in Undergraduate Research, University of Connecticut. Storrs, CT.
- Meagher, C., Jones, M., **Tecoulesco, L.**, Figueiredo, M., Fein, D., **Skoe, E., & Naigles, L.** (2017, May). Relationships Between Auditory Brainstem Responses and Early Language in Typically-Developing Children and Children with Autism Spectrum Disorders. Poster presented at the International Meetings for Autism Research, San Francisco, CA.
- Prystauka, Y., Ekves, Z. & Altmann, G. T. M.** (2018, March). Comprehending events on the fly: Inhibition and selection during sentence processing. Poster presented at the Cognitive Neuroscience Society Annual Meeting, Boston, MA.
- Prystauka, Y., Ekves, Z. & Altmann, G. T. M.** (2018, March). Comprehending events on the fly: Inhibition and selection during sentence processing. Talk presented at the 31st Annual CUNY Conference on Human Sentence Processing, Davis, CA.

- Prystauka, Y., Ekves, Z. & Altmann, G. T. M.** (2017, November). Establishing a bio-marker of object-state competition. Poster presented at the Society for the Neurobiology of Language, Baltimore, MD
- Tecoulesco, L., Skoe, E., & Naigles, L.** (2018, March). Linking Auditory Processing and Lexical Representation Via Phonological Discrimination. Poster presented at the Cognitive Neuroscience Society Annual Meeting, Boston, MA.
- Tecoulesco, L., Skoe, E., Naigles, L.** (2018, May) Linking auditory processing and lexical representation via phonological discrimination. Poster to be presented at the International Meetings for Autism Research, Rotterdam, Netherlands.
- Tecoulesco, L., Stevens, K., Fein, D., Skoe, E., Naigles, L.** (2018, May) Relating neural response consistency to complex speech sounds and concurrent language ability in school age children. Poster to be presented at the International Meetings for Autism Research, Rotterdam, Netherlands.
- Wasserman, C. S., Kim, J. N., Wei, Y., Large, E. W., Skoe, E. & Read, H.L.** (2017). Finding the Beat: Electrophysiological Entrainment to Missing Pulse Rhythms. In *Proceedings of the Society for Music Perception and Cognition*, in press, San Diego, CA.
- Wasserman, C. S., Kim, J. N., Wei, Y., Skoe, E. Read, H.L., & Large, E. W.** (2017). Finding the Beat: Neural Entrainment to Missing Pulse Rhythms. In *Proceedings of the 6th Neurosciences and Music Conference*, in press, Boston, MA.
- Wasserman, C.S., Kim, J.N., Wei, Y., Skoe, E., Read, H.L., & Large, E.W.** (2018). Neural Resonance Theory: Testing Dynamical Predictions Using Missing Pulse rhythms. *Association for Research in Otolaryngology Abstracts*, 41 (PS-864), 567
- Wasserman, C. S., Wei, Y., Kim, J. N., Skoe, E. Read, H.L., & Large, E. W.** (2018). Finding the Beat: Testing Dynamical Predictions of Neural Resonance Theory Using Missing Pulse Rhythms. In *Proceedings of the 15th Annual International Conference for Music Perception and Cognition*, in press, Montreal, QC, Canada.
- Yang, J., Presby, R., Jarvie, A., Rotolo, R., **Fitch, R.H.**, Correa, M., **Salamone, J.D.** (2018, May). Pharmacological and genetic studies of effort-related decision making using mouse touchscreen procedures: Effects of dopamine antagonism and humanized catechol-o-methyltransferase variants. Submitted for *Society for Neuroscience Abstracts*

B. INDIRECTLY SUPPORTED OUTPUTS

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

- Aydogan, G., Flaig, N., Ravi, S. N., **Large, E. W.**, McClure, S. M., Margulis, E. H. (2018). Overcoming bias: Cognitive control reduces susceptibility to framing effects in evaluating musical performance. *Scientific Reports*, 8, 6229. doi: 10.1038/s41598-018-24528-3
- Brynskov, C., **Eigsti, I. M.**, Jørgensen, M., Lemcke, S., Bohn, O.-S., & Krøjgaard, P. (2017). Syntax and morphology in Danish-speaking children with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 47(2), 373-383. doi:10.1007/s10803-016-2962-7
- Eigsti, I. M.**, & de Marchena, A. (in press). Perspectives on gesture from autism spectrum disorder: Alterations in timing and function. *Behavioral and Brain Sciences*.
- Farokhniaee, A., & **Large, E. W.** (2017). Mode-locking behavior of Izhikevich neurons under periodic external forcing. *Physical Review E*, 95 (6), 062414. doi: 10.1103/PhysRevE.95.062414.
- Fuhrmeister, P., Myers, E.B.** (2017). Non-native phonetic learning is destabilized by exposure to phonological variability before and after training. *JASA-EL*, 142(5):EL448. doi: 10.1121/1.5009688.
- Green, J. J., & **Eigsti, I.M.** (in press). Cell-phone vs. microphone recordings: Judging emotion in the voice. *Journal of the Acoustical Society of America*.
- Hall, M. L., **Eigsti, I. M.**, Bortfeld, H., & **Lillo-Martin, D.** (in press). Executive function in deaf children: Auditory access and language access. *Journal of Speech, Language & Hearing Research*.
- Hall, M. L., **Eigsti, I. M.**, Bortfeld, H., & **Lillo-Martin, D.** (in press). Auditory access, language access, and implicit sequence learning in Deaf children. *Developmental Science*.

- 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. doi.org/10.1111/Inc3.12272
- Kondepudi, D., Kay, B., & **Dixon, J. A.** (2017). Dissipative structures, machines and organisms: A perspective. *Chaos*, 27, 104607. doi.org/10.1063/1.5008858
- Li, M. Y. C., Braze, D.,** Kukona, A., Johns, C. L., **Tabor, W.,** Van Dyke, J. A., **Magnuson, J. S.** (2017). Individual Differences in Subphonemic Sensitivity and Reading-Related Abilities. Manuscript submitted for publication. doi.org/10.17605/OSF.IO/3FNCF
- 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
- Mickelsen, L.E,** Kolling IV, F.W., Chimileski, B., Norris, C.E, Nelson, C.E & **Jackson, A.C.** (2017). Neurochemical heterogeneity among lateral hypothalamic hypocretin/orexin and melanin-concentrating hormone neurons identified through single cell gene expression analysis. *eNeuro* Sep 22;4(5). pii. *Equal contribution doi: 10.1523/ENEURO.0013-17.2017
- Naigles, L.R.** & Tek, S. (2017). 'Form is easy, meaning is hard' revisited: (Re) Characterizing the Strengths and Weaknesses of Language in Children with Autism. *Wiley Interdisciplinary Reviews: Cognitive Science* 8. doi: 10.1002/wcs.1438
- Santaniello, S.,** Gale, J.T., & Sarma, S.V. (2018). Systems Approaches to Optimizing Deep Brain Stimulation Therapies in Parkinson's Disease. *WIREs Systems Biology and Medicine*. doi: 10.1002/wsbm.1421.
- Smith, G.,** Franck, T., & Tabor, W. (2018). A self-organizing approach to subject-verb number agreement. *Cognitive Science*. DOI: 10.1111/cogs.12591.
- Sumsky, S.L., Schieber, M.H., Thakor, N.V., Sarma, S.V., & **Santaniello, S.** (2017). Decoding Kinematics Using Task-Independent Movement-Phase-Specific Encoding Models. *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 25 (11), pp. 2122-2132. doi: 10.1109/TNSRE.2017.2709756.
- Tang-Schomer, M.D.,** Wu, W.B., Kaplan, D.L., Bookland, M.J. (2018). In Vitro 3D Regeneration-like Growth of Human Patient Brain Tissue. *J Tissue Engineering and Regenerative Medicine*. 12(5):1247-1260, doi: 10.1002/term.2657.
- Vaughan, C.P., Markland, A.D., **Smith, P.P.,** Burgio, K.L., **Kuchel, G.A.** (2018). American Geriatrics Society/National Institute on Aging Urinary Incontinence Conference Planning C, et al. Report and Research Agenda of the American Geriatrics Society and National Institute on Aging Bedside-to-Bench Conference on Urinary Incontinence in Older Adults: A Translational Research Agenda for a Complex Geriatric Syndrome. *Journal of American Geriatrics Society* 2018;66(4):773-82. Epub 2017/12/06. doi: 10.1111/jgs.15157.
- 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

- Assgari, A. A., **Theodore, R. M.,** & Stilp, C. E. Differential effects of acoustic variability on spectral context effects in speech perception. *Journal of the Acoustical Society of America*.
- Davis, C. P., & Yee, E.** Features, labels, space, and time: Exploring taxonomic and thematic semantic relationships in the anterior temporal lobe and angular gyrus. *Language, Cognition and Neuroscience*.
- Kim, J. N., Ashley, R., & **Large, E. W.** (in press). The online processing of implied harmony in the perception of tonal melodies: Effect of harmonic expectations. *Music Perception*.
- Lu, J.** (2018). Inferring Diagnostic Criteria of Substance Use Disorders from Comorbid Conditions and Genotypes, *BMC Systems Biology*.
- Michaels, T.I.,** Long, L.L., **Stevenson, I.H., Chrobak, J.J., & Chen, C-MA.** Chronic ketamine alters cross-frequency coupling in the rat hippocampus: Implications for translational models of schizophrenia. *European Journal of Neuroscience*.
- Sumsky, S.L. & **Santaniello, S.** Decision Support System for Seizure Onset Zone Localization in Drug-Resistant Epilepsy based on High Frequency EEG Activity. *IEEE Journal of Biomedical and Health Informatics*.

Theodore, R. M., Marmon, S., & Salvador, K. Reading ability influences perceptual learning of talker-specific phonetic detail. *Language & Speech*.

Theodore, R. M., Campbell, J. A., & McSherry, H. Contextual influences on phonetic categorization in school-aged children. *Frontiers in Psychology*.

3. Book Chapters Indirectly Supported by IBACS

Dai, Y., & **Eigsti, I.M.** (in press). Executive functions in adolescents with autism spectrum disorder. In N. Gelbar (Ed.), *Adolescents with Autism Spectrum Disorder*. New York: Oxford University Press.

Drouin, J. R., *Monto, N. R., & Theodore, R. M. (2017). Talker-specificity effects in spoken language processing: Now you see them, now you don't. In A. Lahiri and S. Kotzor (Eds.), *The speech processing lexicon: Neurocognitive and behavioral approaches* (pp. 107-128). Berlin, Germany: De Gruyter Mouton.

Large, E. W., & Kim, J. C. (in press). Expectation. In J. Rentfrow & D. Levitin (Eds.), *Foundations of Music Psychology*. Cambridge: MIT Press.

Large, E. W. (2017). Music from the air to the brain and body. In R. Ashley & R. Timmers (Eds.), *Routledge Handbook of Music Cognition*. pp. 3-11, New York: Routledge.

Magnuson, J. S. (2017). Mapping spoken words to meaning. In G. Gaskell & J. Mirkovic, *Speech Perception and Spoken Word Recognition* (pp. 76-96). New York: Routledge.

Naigles, L. R. (Ed.) (2017) *Innovative Investigations of Language in Autism Spectrum Disorder*. NY: APA Books/Walter deGruyter.

4. Conference Abstracts Indirectly Supported by IBACS:

Abdelaziz, A., Wagner, M., Fein, D., & **Naigles, L.** (2017, April) Caregiver talk during different types of social interaction: Comparing TD children and children with ASD. Poster presented at the Biennial Meetings of the Society for Research in Child Development, Austin, TX.

Abdelaziz, A., Wagner, M., Fein, D., & **Naigles, L.** (2017, May) Relationships Between Engagement States and Early Functioning in Children with Autism and Typical Development. Poster presented at the International Meetings for Autism Research, San Francisco, CA.

Al-Nagaar, I., Hardy, C., **Kuchel, G., Smith, P.P.** (2017, September). Age is Associated with an altered role of the HCN ion channel in adrenergic detrusor relaxation. International Continence Society Annual Scientific Meeting, Florence, IT.

Alpers-Leon, N., McIntyre, N., Mundy, P., **Naigles, L.** (2017, April). What Can Verbal IQ Indicate About Spoken Language of Children with Autism and ADHD in a Virtual Classroom Setting? Poster presented at the Biennial Meetings of the Society for Research in Child Development, Austin, TX.

Chen, T., Phadke, G., Satterwhite-Warden, J., Kondepudi, D., **Dixon, J. A.**, & Rusling, J. (2018, April). Collective Self-Motion of Multiple Benzoquinone Particles at the Air-Water Interface. Talk presented at the Northeast Regional Conference on Complex Systems, Binghamton, NY.

Dai, Y., Burke, J., **Eigsti, I.M., Naigles, L.**, & Fein, D. (2017, May) Language Development in Dual Language Learners with Autism Spectrum Disorder and Other Developmental Delays. Poster presented at the International Meetings for Autism Research, San Francisco, CA.

De Bari, B., Dixon, J. A., Kay, B. A. & Kondepudi, D. (2018, April). Physical Predictions from Dynamical Systems Modeling of an Electrodynamical Dissipative Structure. Poster presented at the Northeast Regional Conference on Complex Systems, Binghamton, NY.

Dixon, J. A. (2017, November). Rudimentary Perception-Action in Dissipative Structures. Invited colloquium presented at Center for Collective Dynamics of Complex Systems at Binghamton University, Binghamton, NY.

Dixon, J. A., Kondepudi, D., & Kay, B. A. (2017, July). Sensors in Dissipative Structures. Invited talk presented at the EON workshop on Sensors, Motors and Behaviour at the Origin of Life, Tokyo Institute of Technology, Tokyo, Japan.

Ekves, Z., Paz-Alonso, P.M., Hindy, N.C., Solomon, S., **Altmann, G.T.M.** (2018, March). Instantiating new objects into the discourse: the role of hippocampus and prefrontal cortex. Poster presented at the Cognitive Neuroscience Society Annual Meeting, Boston, MA.

- Ekves, Z.**, Paz-Alonso, P.M., Hindy, N.C., Solomon, S., **Altmann, G.T.M.** (2017, November). Functional connectivity between cognitive control and episodic memory systems in event comprehension. Poster presented at the Society for the Neurobiology of Language, Baltimore, MD.
- Ekves, Z.**, Paz-Alonso, P.M., Hindy, N.C., Solomon, S., **Altmann, G.T.M.** (2017, October). Functional connectivity underlying the processing of object-state change. Poster presented at Event Representations in Brain, Language, and Development Workshop, Nijmegen, The Netherlands.
- Grooms, D.R., **Lepley, A.S.**, Needle, A.R. (2018, January) Remembering the Brain in Orthopedic Rehabilitation: Translational Neuroscience to Understand Musculoskeletal Injury. 51st Meeting of the Winter Conference on Brain Research. Whistler, British Columbia.
- Jyotishi, M. & Naigles, L.** (2017, April). Syntactic Bootstrapping: 28-month olds can shift between transitive and intransitive frames. Poster presented at the Biennial Meetings of the Society for Research in Child Development, Austin, TX.
- Jyotishi, M. & Naigles, L.** (2017, July) Syntactic Bootstrapping: 28-month olds can shift between transitive and intransitive frames. Poster presented at the 14th International Congress for the Study of Child Language, Lyons, France.
- Kim, J. C., & **Large, E. W.** (2017). Harmonic templates emerging in gradient frequency neural networks with Hebbian plasticity. In Proceedings of the 6th Neurosciences and Music Conference, Boston, MA.
- Kim, J. C., & **Large, E. W.** (2017). Synchronization of canonical oscillators to syncopated rhythms: The effect of temporal receptive field. New England Sequencing and Timing 2017, Storrs, CT.
- Luthra, S., & Magnuson, J. S.** (2017, July). Cumulative response probabilities: Estimating time course of lexical activation from single-point response times. Cognitive Science Society, London, UK.
- Naigles, L.** (2017, November) What's Meaning Got to Do with It? Some Origins of the Semantic Difficulties of Children with ASD. Invited Address at the Research Symposium, Advances in Autism Research: From Learning Mechanisms to Novel Interventions, Annual Meeting of the American Speech & Hearing Association, Los Angeles, CA.
- Naigles, L. & Piskin, J.** (2017, November) Lexical and Syntactic influences on Children's Acquisition of Verb Argument Structure: Comparing Typical Children and Children with Autism Spectrum Disorder. Poster presented at the Boston University Conference on Language Development, Boston, MA.
- Prystauka, Y., Ekves, Z. & Altmann, G. T. M.** (2018, March). Comprehending events on the fly: Inhibition and selection during sentence processing. Poster presented at the Cognitive Neuroscience Society Annual Meeting, Boston, MA.
- Prystauka, Y., Ekves, Z. & Altmann, G. T. M.** (2018, March). Comprehending events on the fly: Inhibition and selection during sentence processing. Talk presented at the 31st Annual CUNY Conference on Human Sentence Processing, Davis, CA.
- Simmons, E.S.**, Paul, R., **Theodore, R., Li, M., & Magnuson, J.** (2017, November). Insight into spoken word processing in young children using eye movements. Poster presented at the Conference of the Society for the Neurobiology of Language, Baltimore, MD.
- Smith, G.**, Franck, J., and Tabor, W. (2018, March). Self-organized parsing predicts encoding interference slowdowns in agreement attraction contexts. Poster presented at the 31st Annual CUNY Sentence Processing Conference in Davis, CA.
- Sumsky, S.L. & **Santaniello, S.** (2018, April) "Automated Identification of the Seizure Onset Zone in Drug-Resistant Epilepsy based on High-Frequency iEEG Activity." 6th MN Neuromodulation Symposium. Minneapolis, MN.
- Sumsky, S.L., & **Santaniello, S.** (2018, March). "Seizure Onset Zone Localization in Drug-Resistant Epilepsy based on Machine Learning and iEEG Activity." 44th Annual Northeast Bioengineering Conference (NEBEC 2018). Philadelphia, PA.
- Sumsky, S.L., & **Santaniello, S.** (2018, October). "Identification of the Seizure Onset Zone in Drug-Resistant Epilepsy based on High Frequency Interictal EEG Activity and Machine Learning." Biomed Eng Soc Annual Meeting (BMES 2018). Atlanta, GA.
- Sumsky, S.L., Somma, T., **Santaniello, S., & Schomer, M.** (2018, October). "Unsupervised Classification and Analysis of Interictal Ripples in Scalp EEG as a Noninvasive Biomarker of Pediatric Epilepsy." Annual Meeting of the Child Neurology Society (CNS 2018). Chicago, IL.
- Tabor, W., **Ekves, Z., Smith, G.**, Mao, Y., Dankowicz, H., (2017, June). The Blessing and the Curse of Fraught Regions in a Group Coordination Game. Poster presented at the Network Science Society, Indianapolis, IN.

- von Paternos, A., Murphy, P., Schmidt, S., Hassan, S., & **Santaniello, S.** (2017, October) "A Diagnostic System for Automatic Seizure Onset Zone Localization." Biomed Eng Soc Annual Meeting (BMES 2017). Phoenix, AZ.
- Zhang, X. & Santaniello, S.** (2018, November). "Cerebellar Stimulation in Essential Tremor: A Computational Model of the Cortico-Cerebello-Thalamo-Cortical Pathway." SfN NEUROSCIENCE 2018, San Diego, CA.

APPENDIX 8



CONNECTICUT INSTITUTE FOR THE BRAIN
AND COGNITIVE SCIENCES

**Meet-and-Speak Event**

Tuesday, May 8th, 2018 at the Alumni Center

- 9:00 AM Breakfast, Coffee and Networking – 20 minutes
- 9:20 AM **Opening Remarks**
- 9:30 AM **Gerry Altmann**, Director, CT Institute for the Brain and Cognitive Sciences
Welcome to the Institute
- 9:40 AM **Adam Lepley**, Kinesiology
Neuroplastic changes following musculoskeletal injury: Origin for motor impairments
- 9:57 AM **Ed Large**, Psychological Sciences
Characterization of neural & electrophysiological correlates of pitch perception
- 10:14 AM **Akiko Nishiyama**, Physiology & Neurobiology
Exploring the role of NG2 glial cells in the mouse brain network
- 10:31 AM **Jim Magnuson**, Psychological Sciences
Modeling human speech recognition: Insights from deep learning
- 10:45 AM Coffee Break and Networking – 20 minutes
- 11:05 AM **James Dixon**, Psychological Sciences
From swarming to team dynamics: Towards a physical account of collective behavior
- 11:22 AM **Michael O'Neil**, Molecular and Cellular Biology
X-linked imprinted genes in Maternal Immune Activated (MIA) mice: A model for ASD
- 11:39 AM **John Salamone**, Psychological Sciences
Inflammation effects on effort-based decision making: Relevance for depression
- 12:00 PM Lunch and Networking - 1 hour and 15 minutes
- Graduate Student Data Blitz**
- 1:15 PM **Andre Lindsey**, Speech, Language & Hearing Sciences
Priming disrupted processes
- 1:27 PM **Ashley Parker**, Speech, Language & Hearing Sciences
Auditory processing skills in children with Specific Language Impairment: Is the problem actually auditory?
- 1:39 PM **Jessica Contreras**, Psychological Sciences
Impact of language modality on number cognition development
- 1:51 PM **Alexandria Battison**, Physiology & Neurobiology
Over the rainbow: Investigating connectivity of neocortical interneurons
- 2:03 PM **Ashley Dhaim**, Psychological Sciences
The role of joint action in development
- 2:30 PM Poster Session / Open Forum – 1 Hour
- 5PM **Keynote, Konover Auditorium - Holly Fitch, Professor of Psychological Sciences presents: Auditory processing in genetically engineered mouse models: Implications for human language**

Meet-and-Speak Event
Wednesday, May 9th, 2018 at the Alumni Center

9:00 AM	<u>Breakfast, Coffee and Networking – 20 minutes</u>
9:20 AM	Gerry Altmann , Psychological Sciences <i>The science of understanding</i>
9:40 AM	David Martinelli , UCHC Neuroscience <i>The function of synaptic adhesion proteins at outer hair cells of the cochlea</i>
9:57 AM	Ephraim Traktenberg , UCHC Neuroscience <i>Effects of extra-axonal tissue remodeling on experimental regeneration of CNS axons</i>
10:14 AM	Min Tang-Schomer , UCHC Neuroscience, Jackson Labs <i>Probing the brain's growth and function outside the body</i>
10:31 AM	Marie Coppola , Psychological Sciences <i>CEDAR: Community engagement in Deafness and Autism research</i>
10:45 AM	<u>Coffee Break and Networking – 20 minutes</u>
11:05 AM	Bernard Grela , Speech, Language and Hearing Sciences <i>Conceptual organization in language impairment</i>
11:22 AM	Roeland Hancock , Psychological Sciences <i>Neuroimaging of the genetic architecture of language processing</i>
11:39 AM	Chris Heffner , Postdoc in Speech, Language and Hearing Sciences and Lauren Powers , Child Research Recruitment Coordinator at UConn KIDS <i>A day at the museum: Behavioral science at the CSC</i>
12:00 PM	<u>Lunch and Networking - 1 hour and 15 minutes</u>
	Graduate Student Data Blitz
1:15 PM	Ryan Troha , Psychological Sciences <i>Observational learning of a foraging scenario in rats</i>
1:27 PM	Jenelle Salisbury , Philosophy <i>The unity of consciousness and the first-person perspective</i>
1:39 PM	Peter Perrino , Psychological Sciences <i>Developing a novel rule learning paradigm for mice</i>
1:51 PM	Ryosuke Hattori , Linguistics <i>Children's acquisition of degree expressions</i>
2:03 PM	Monica Ly , Psychological Sciences <i>Diffusion tensor imaging in university athletes with concussion</i>
2:30 PM	<u>Poster Session / Open Forum – 1 Hour</u>
5PM	Keynote, Konover Auditorium - Dianne Newbury, Professor of Biological and Medical Sciences at Oxford Brookes University presents: Genetic contributions to auditory processing disorder

Feedback from 33 respondents to a post-event questionnaire: 16 made new contacts potentially leading to collaboration. All somewhat (11) or strongly (22) agreed that the event is useful for the research community. All said they were somewhat (13) or very (20) likely to recommend the event to a colleague or student.