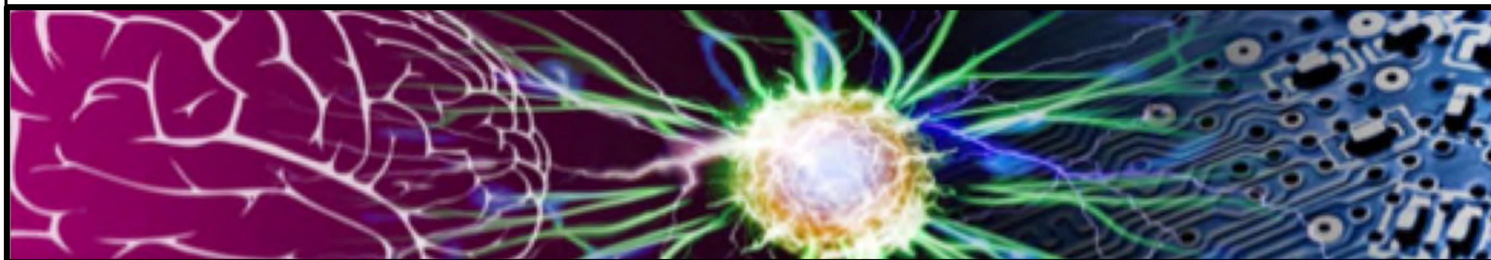
University of Colorado **Boulder**

Institute of Cognitive Science

2022 Fall Semester Newsletter



From the Director

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Friends,

It was wonderful to see so many of you *in person* at our KickOff event last month. As I discussed at the KickOff, a strange thing happened while we were all hunkered down and working remotely for the past few years: our Institute grew dramatically!!!

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- In 2020, our Annual Grant Expenditures were about $8.5 million. Our expenditures have since risen to $14.6 million in 2022. We experienced growth across most of our major sectors: education and learning, cognitive neuroscience, and computational methods.
- These increased grant expenditures have directly translated into more research opportunities for our students and faculty. Since 2020, our community has grown to include 75 new members. The portions of our community experiencing the most growth include Graduate Research Assistants and Student Hourlies, Research Faculty, and our Academic Students.

This is unreservedly exceptionally good news: a major goal for all Institutes is to create unparalleled, interdisciplinary research and training opportunities for early career scholars. However, this "growth spurt" is definitely creating some complications which we will need to figure out and navigate together over the coming year.

Space. We have more people and projects than ever before, but our research and lab space is largely unchanged. In particular, we need more subject/behavioral testing rooms, more collaboration and co-design spaces, and more 'closed door' offices in order to support both the increased volume
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of our new grant work, and the specific types of work we are being funded to perform. There is one bright spot here: the CINC remodel in support of the new Bidwell lab is complete and this will provide over 2500 sq ft of new research and lab space.

Over the coming year, we will need to think creatively about how best to use the space we have, and at the same time, we need to envision the space we will need in the future to be successful. Developing concrete ideas about our future space needs will provide us with an important communications and planning tool that can enhance our collaborations with senior administration and potential donors. I am so thrilled that our new Associate Director Dr. Alba Tuninetti is here to lead and coordinate these important future space discussions!

Faculty. We have fewer tenure track faculty now - a total of eight - than we had in 2019. When considered with the growth in our community, this means we have fewer faculty supervising more and more students (both GRAs and academic students), and mentoring larger numbers of research faculty. This is not sustainable, or humane. This faculty crunch has also made it impossible for us to expand our educational programs, or to adequately staff our community service positions. Here, we have one bright spot on the horizon: Dr. Roland Benoit will be joining our community in January 2023. Roland's arrival will bring the number of tenure track faculty in ICS back to our 2019 level of 8.5 (50% of his position is rostered in the Department of Psychology and Neuroscience). We have made offers to two additional tenure track faculty, one in cognitive neuroscience and one in artificial intelligence. Securing both of these positions will go a long way towards revitalizing our faculty; but these additions will also create further space complications.

Staff. I am ecstatic to announce that ICS has successfully recruited several outstanding new staff members to support our growing community and new projects. You all will be meeting them in the weeks ahead as they officially join our team. Our growth spurt has necessitated that we enlarge our staff support team just to keep up with the volume.

But, we are also being challenged during this period to develop new ways of working. Much of our growth is being driven by very large projects, which need different kinds of administrative support in addition to needing 'more' support. We have been busy talking to and learning from our sister Institutes who have more large project management experience. Based on our learnings, we have recently hired our first Large Project Business Manager specialist. This is largely a grant-supported position, and this person will be helping our OpenSciEd and iHUB teams to take their research and services to new levels over the coming year. We are in the process of creating an MOU with the Office of Contract and Grants, as well as a co-training model, that will enable us to streamline and handle in-house a variety of 'rapid response' grant and service agreements that are common to the OpenSciEd/iHUB programs.

Shout-Outs and Other Things You Should Know.

- It is important to remember that for the last 6 months, during our growth spurt, we have been down an Associate Director. I want to give a big shout-out to Jean Bowen and Cat Latzer for stepping up and providing vital and essential leadership to ICS during this critical time. Jean and Cat picked up many duties and activities that would have fallen to the Associate Director, and they helped to educate me as I also inherited a few of these tasks. We are so incredibly lucky, and grateful, to have such knowledgeable, dedicated, and gracious leaders in our community.
- I also want to thank former Associate Director Donna Caccamise for being willing to step back in post-retirement and help us to address gaps in coverage during this period. Donna helped with the approval process for several months, and critically, continued to serve as the project manager and provide oversight to the CINC Bidwell Remodel.

- Based on discussions at our recent faculty meeting, we have formulated the outlines of a plan for how to use the Pilot Study/Research Stimulus funds we have been saving for the past few years. We hope to have a call for applications out by the end of this year, with awards to be made early in 2023. I am so appreciative of the leadership that Alba is bringing to the design and implementation of this exciting new program.
- After postponing three times, I am finally going to go on sabbatical in calendar year 2023, from January 1 to Dec 31. Luckily for all of us, Prof. Jim Martin has graciously agreed to serve as Interim Director in my absence. Jim brings a wealth of leadership and administrative experience to this position. He served as the Chair of the Computer Science Department for 6 years during one of its big 'growth spurts' and he recently chaired the CEAS First Level Review Committee. I will work with Jim and the ICS leadership team to establish a clear framework to guide our activities and decisions over the coming year to ensure that this transition goes smoothly for all of you and for Jim!

While we experienced much success during the challenging COVID times, a lot was also lost. It has been challenging to build and strengthen our relationships during remote working, to meet and welcome our new members, and to foster new collaborations and friendships. Towards these ends, we are working to restore our social calendar and the events that bring us together. Our colloquium series is now back in a hybrid format, with our signature delicious food and drink being served to those attending in person. We are also holding our (Holiday) Members Gathering this year on **Dec 9** - so save the date! I am already having visions of whole poached salmon and baked brie. Sadly, Mike and I will not be able to host this event at our house this year: ICS has outgrown our premises and we will not all fit into our living room any longer. Instead, we have reserved our favorite room in the CASE building where we held Donna's retirement party. I hope to see you all there!

Cheers,
Tammy

New ICS Faculty

Roland Benoit will be joining us in January of 2023 as an Associate Professor in ICS and the Department of Psychology & Neuroscience! His work examines adaptive memory and the different neurocognitive mechanisms underlying how humans can suppress intrusive and unwanted memories. He uses behavioral, fMRI, and neuromodulation methods in both neurotypical populations and patients with focal lesions. Roland will be setting up a TMS coil within ICS to continue his work on the mechanisms that underlie our ability to purge intrusive memories from our consciousness.

New ICS Staff

Alba Tuninetti joined us as our new Associate Director fulltime this Fall 2022 semester. She received her PhD in Cognitive Psychology from the University of Pittsburgh, with a Neuroscience certificate from the Center for the Neural Bases of Cognition (CNBC; Carnegie Mellon University and University of Pittsburgh). Her main research interests are psycho- and neurolinguistics, with an emphasis on second language speech perception and bilingualism. Alba gained valuable experience with project and grant management during her time abroad (Australia, Turkey) and is excited to get to know ICS faculty and researchers as she takes on the role of Associate Director.

Please also welcome **Zachary Kilday**, **Linda McCormick**, **Sunanda Singh**, and **Hayley Bender** to our administrative team!

New ICS Fellows

Grace Leslie
Grace is an Assistant Professor in ATLAS, where she studies the music-cognition interface. As an electronic musician herself, she is interested in better understanding the links between music and emotions in order to promote the use of brain-computer interfaces to reveal internal cognitive and affective states. She is also interested in applications of these to health and wellness. Grace will be leading the Brain Music Lab here at CU Boulder.

Robert McDonald
Robert is Dean of University Libraries, Senior Vice Provost of Online Education, and Professor of Library Administration. He is responsible for leading the Boulder campus library system in fulfilling their mission to inspire learning, research and discovery by connecting knowledge, information and people. In his role as Senior Vice Provost of Online and Extended Education, Robert provides leadership and strategy for online education for the Boulder campus, working with all colleges and schools, and for CU System initiatives in this area.

Arturo Cortez
Arturo Cortez is an Assistant Professor of Teacher Learning, Research and Practice at the School of Education. Broadly, his work is animated by cultural historical activity to explore how teachers collectively design for transformative and humanizing learning environments that leverage the everyday cultural practices of nondominant youth in urban settings. In his work with novice teachers, he intentionally designs for equity to understand the learning processes that emerge as teachers learn how to break away from dominant forms of schooling, opening up opportunities for new relationships between teachers, students, school administration, and community members.

New ICS Visiting Scholars

Hannah Joeckel
Hannah is a 2022 recipient of the National Institute on Drug Abuse (NIDA) Summer Research Internship with Cinnamon Bidwell. The internship financially supports undergraduate students with the goal of increasing underrepresented populations in drug abuse and addiction research and pairs those undergraduates with leading NIDA research scientists. Hannah is currently an undergraduate at the University of Cincinnati studying for a Bachelor's of Science degree in Psychology with a minor in Sociology and a certificate in Deaf Studies.

ICS Fellows in the Spotlight

Iskra Fileva was featured in Psychology Today's Philosopher's Diaries pondering 'Our Inner Poet: Why we know so little about the inner lives of others.'. Philosopher's Diaries are a series of articles by Iskra exploring "*thoughts on persons and things*".

June Gruber and colleagues published an OpEd in Scientific American's 'Inequities' section titled 'Highlight the Stigma of Women's Mental Illness: High-profile celebrities have to meet the impossible expectations of being compassionate and competitive while seamlessly projecting a sexual person."

Zach Kilpatrick was interviewed by The Denver Channel explaining the data behind decision-making for voters. “As a mathematician who relies on equations and data to draw conclusions about how and why people make certain decisions, he applies that math to politics to try to determine what is driving voters to make certain decisions.”

ICS Fellows Awards

Congratulations to the following ICS Fellows for their recognition of excellence in research and teaching!

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Laura Michaelis, a professor in Linguistics and an ICS fellow, won the 2022 Excellence in Research, Scholarly, and Creative work from the Boulder Faculty Assembly. This award focuses on interdisciplinary work that may be public-facing, reflects long-term achievements, and demonstrates a positive impact on the community.

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June Gruber, a professor in Psychology and ICS Fellow, won the 2022 Excellence in Teaching and Pedagogy from the BFA. This award focuses on innovation and evidence-based teaching methods and mentorship practices both in and outside the classroom.

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ICS Retirements

Donna Caccamise – Farewell as Associate Director!

Donna retired in February 2022 as Associate Director of ICS after being the sole Associate Director of the institute since July 1999. She worked with all three of its Directors (Walter Kintsch, Marie Banich, and currently Tammy Sumner) to expand and fund the institute, ensuring that both the physical infrastructure (our MRI facility!) and the staff resources were there to support researchers in all fields of cognitive science. As Director of Academic Affairs, Donna spearheaded the push to include Cognitive Science in teaching and coursework at CU Boulder, getting the Joint PhD implemented (along with Alice Heely), the undergraduate certificate, and ensuring that courses were cross-listed across various departments. In recent years, she led the effort to grow the ICS research management team with the addition of grant managers and hopes to see this growth continue to manage the growth of ICS research effectively and efficiently. Donna’s passion for cognitive science is seen in her own
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work, which is assuredly interdisciplinary and focuses on a translation of '*theory to practice, so that it makes a real difference in the world*'; some of her current work examines ways to teach middle school students reading comprehension skills to help guide them through difficult course content. Donna's leadership at ICS will be missed, but we are very lucky to have her still with us as an Associate Research Professor!

Photo: ICS faculty and staff gather to send Donna off as Associate Director!

Ellen MacKenzie – Farewell!

Our long-time payroll and finance associate Ellen MacKenzie retired in September of this year. Please send her off with thanks and gratitude for her hard work and dedication to make our work lives easier.

Photo: Ellen writes "Here I am with my "Flat grandchildren" taking them to a CU Football game."

1. How long have you worked for CU Boulder?

10.5 years

2. Of that time, how long have you been with ICS?

All of it – two years with Jean as her Admin Assistant, 8+ years with Cat as Payroll Liaison.

3*. How have your responsibilities changed over time at ICS?*

As with all positions in ICS, my job is ever evolving! I have gone from not knowing a single acronym at the University to the go-to person for anything payroll. However, I am still learning today – Excel is a constant source of learning opportunities.

4. What do you look forward to the most in your retirement?

Never having to deal with Fiscal Year End again! I'm looking forward to moving to the mountains and enjoying the outdoors in Colorado for all four seasons. I'm looking forward to spending more time with my kids and grandkids – if they'll let me. I'm looking forward to traveling without having any constraints (except maybe COVID or the next pandemic that comes along). I will very much miss everyone at ICS, especially my "team". I was going to name people but decided I'll miss everyone so no names necessary.

Yasko Endo – Farewell!

Communications specialist, program manager, and Diversity, Equity, Inclusion coordinator Yasko Endo retired in August. She is still using her Yasko.Endo@colorado.edu email so feel free to reach out to her with belated farewells.

Photo: Yasko wearing a Colorado face mask with her service dog Bodhi.

1. *How long have you worked for CU Boulder?*

10 years

2. *Of that time, how long have you been with ICS?*

I've been with ICS for almost five years. Prior to that I was a Program Manager for several computational thinking game-design grant projects at the Department of Computer Science.

3. *How have your responsibilities changed over time at ICS?*

Initially most of my work involved setting up, creating and content managing ICS and other research project websites and producing the newsletters, in addition to leading public outreach programming for INC. My role evolved to be one of the main drivers for Diversity, Equity, and Inclusion (DEI) improvements that were identified in the 2019 ARPAC review. This is passion-work for me, and it was a privilege to not only help build a stronger sense of community and connection as well as processes to systemically improve work culture for all at ICS, but also to bring the 12 RIO Institutes together for

collaborative DEI work. I had several projects in progress for fall, so will miss being part of those impactful efforts working with people who have become very important to me.

4. *What do you look forward to the most in your retirement?*

First thing is to fully recover from Post-Acute Sequelae COVID (Long COVID) and get my fast brain and healthy body back! Then I can't wait to hike, cycle, kayak with Bodhi (and my spouse) everywhere, write, and host more mindfulness and belonging ingatherings online. The list of projects and activities is decades-long, so I can't wait to be healthy and dive in.

ICS Promotions & Re-appointments

Donna Caccamise was reappointed to her position as Associate Research Professor by unanimous vote!

Alaa Ahmed, ICS Fellow, was promoted to Full Professor in the Department of Mechanical Engineering – Congratulations!

ICS Faculty Special Mentions and Research Highlights

Sidney D'Mello was interviewed by IBM/Intel Company on his work with the National Institute for Student AI Teaming.

Leanne Hirshfield and team hosted their first fNIRS workshop held at their CINC lab location in early April 2022. Partnering with NIRX, the hands-on workshop covered everything from probe set up and data collection, to hyperscanning, real-time data streaming, and analysis tools for the fNIRS signal. For more information and future workshops contact Leanne.

Marta Čeko and team, Philip A. Kragel, Choong-Wan Woo, Marina López-Solà & Tor D. Wager's paper was highlighted in a Nature.com News & Views editorial for their paper titled '*Common and stimulus-type-specific brain representations of negative affect*'. Congratulations all!

Abstract: The brain contains both generalized and stimulus-type-specific representations of aversive events, but models of how these are integrated and related to subjective experience are lacking. We combined functional magnetic resonance imaging with predictive modeling to identify representations of generalized (common) and stimulus-type-specific negative affect across mechanical pain, thermal pain, aversive sounds and aversive images of four intensity levels each. This allowed us to examine how generalized and stimulus-specific representations jointly contribute to aversive experience. Stimulus-type-specific negative affect was largely encoded in early sensory pathways, whereas generalized negative affect was encoded in a distributed set of midline, forebrain, insular and somatosensory regions. All models specifically predicted negative affect rather than general salience or arousal and accurately predicted negative affect in independent samples, demonstrating robustness and generalizability. Common and stimulus-type-specific models were jointly important for predicting subjective experience. Together, these findings offer an integrated account of how negative affect is constructed in the brain and provide predictive neuromarkers for future studies.

Peter Foltz and Peter Pressman (Neurology, CU Anschutz) were awarded an AB-Nexus grant for developing trustworthy artificial intelligence (AI) tools to improve the diagnosis of dementia and boost clinician acceptance of these new low-cost screening methods. Congratulations!

Peter's PhD student Chelsea Chandler CS/ICS successfully defended her dissertation in March 2022. The title was "Methods for Multimodal Assessment of Cognitive and Mental State". She was advised by Peter Foltz and Jim Martin. Learn more about her work here.

ICS Publications!

Sempio, C., **Bidwell, L.C.**, Hutchison, K.E., Huestis, M.A., Klawitter, J., Christians, U., & Henthorn, T. (2021). Using population pharmacokinetic modeling to estimate exposure to Δ9- tetrahydrocannabinol in an observational study of cannabis smokers in Colorado. Therapeutic Drug Monitoring. PMID: 33656464

Mueller, R.L.*, Ellingson, J.M.*, **Bidwell, L.C.**, Bryan, A., Hutchison, K. E. (2021). Are the acute effects of THC different in aging adults? Brain Science, 11(5), 590. PMCID: PMC8147270

Gibson, L.P.*, Gust, C.L.*, Ellingson, J., YorkWilliams, S.*, Sempio, C., Klawitter, J., **Bryan. A.**, Hutchison, K.E., & Bidwell, L.C. (2021). Investigating sex differences in acute intoxication and verbal memory errors after ad libitum cannabis concentrate use. Drug and Alcohol Dependence. PMID: 33866072

Caccamise, D. & Foltz, P. W. (2022). Personalized Instruction to Teach Secondary Students to Deeply Comprehend and Build Knowledge from Science Texts. In Proceedings of the International Society of the Learning Sciences, Hiroshima, June.

Adam Wiemerslage, Miikka Silfverberg, Changbing Yang, Arya D. McCarthy, Garrett Nicolai, **Eliana Colunga**, and **Katharina Kann**. Morphological Processing of Low-Resource Languages: Where We Are and What's Next. In Findings of the 60th Annual Meeting of the Association for Computational Linguistics, May 2022.

Chandler, C., **Foltz, P. W.**, & Elvevåg, B. (2022). Improving the Applicability of AI for Psychiatric Applications through Human-in-the-loop Methodologies. Schizophrenia Bulletin.

Cohen, A.S., Rodriguez, Z., Warren, K.K., Cowan, T., Masucci, M.D., Edvard Granrud, O., Holmlund, T.B., Chandler, C., **Foltz, P.W.** and Strauss, G.P., (2022). Natural language processing and psychosis: on the need for comprehensive psychometric evaluation. Schizophrenia Bulletin.

Southwell, R., Pugh, S., Perkoff E. M., Clevenger, C., Bush, J., Lieber, R., Ward, W., **Foltz, P.**, D'Mello, S. (2022). Challenges and feasibility of automatic speech recognition for modeling student collaborative discourse in classrooms. In: Proceedings of the 15th Conference on Educational Data Mining. Springer

Hoover, J. D., & **Healy, A. F.** (2021). The bat-and-ball problem: A word-problem debiasing approach. Thinking & Reasoning, 27, 567-598.

Kole, J. A., **Healy, A. F.**, Schneider, V. I., & Barshi, I. (2021). Training principles for declarative and procedural tasks (pp. 131-149). In L. B. Landon, K. J. Slack, & E. Salas (Eds.), Psychology and human performance in space programs: Research at the Frontier. Abingdon, UK: Taylor & Francis.

Hitchcock, L.N.*, Tracy, B., Bryan. A., Hutchison, K.E, Bidwell, L.C. (2021). Acute effects of cannabis concentrates on motor control and speed: smartphone-based mobile assessment. Frontiers in Psychiatry. PMCID: PMC7862106

Abteen Ebrahimi and **Katharina Kann**. How to Adapt Your Pretrained Multilingual Model to 1600 Languages. In Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics, online, August 2021.

Abteen Ebrahimi, Manuel Mager, Arturo Oncevay, Vishrav Chaudhary, Luis Chiruzzo, Angela Fan, John Ortega, Ricardo Ramos, Annette Rios, Ivan Vladimir Meza Ruiz, Gustavo A. Giménez-Lugo, Elisabeth Mager, Graham Neubig, Alexis Palmer, Rolando Coto-Solano, Thang Vu, and **Katharina Kann**. AmericasNLI: Evaluating Zero-shot Natural Language Understanding of Pretrained Multilingual Models in Truly Low-resource Languages. In Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics, Dublin, May 2022.

Adam Wiemerslage, Miikka Silfverberg, Changbing Yang, Arya D. McCarthy, Garrett Nicolai, **Eliana Colunga**, and **Katharina Kann**. Morphological Processing of Low-Resource Languages: Where We Are and What's Next. In Findings of the 60th Annual Meeting of the Association for Computational Linguistics, May 2022.

Ananya Ganesh, Hugh Scribner, Jasdeep Singh, Katherine Goodman, Jean Hertzberg and **Katharina Kann**. Response Construct Tagging: NLP-Aided Assessment for Engineering Education. In Proceedings of the 17th Workshop on Innovative Use of NLP for Building Educational Applications, Seattle, July 2022.

Ananya Ganesh, **Martha Palmer**, and **Katharina Kann**. What Would a Teacher Do? Predicting Future Talk Moves. In Findings of the 59th Annual Meeting of the Association for Computational Linguistics, August 2021.

Cory Paik, Stephane Aroca-Ouellette, Alessandro Roncone, and **Katharina Kann**. The World of an Octopus: How Reporting Bias Influences a Language Model's Perception of Color. In Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing, Punta Cana, November 2021.

Manuel Mager, Arturo Oncevay, Elisabeth Mager, **Katharina Kann**, and Thang Vu. BPE vs. Morphological Segmentation: A Case Study on Machine Translation of Four Polysynthetic Languages. In Findings of the 60th Annual Meeting of the Association for Computational Linguistics, May 2022.

Rajat Bhatnagar, Ananya Ganesh, and **Katharina Kann**. Don't Rule Out Monolingual Speakers: A Method For Crowdsourcing Machine Translation Data. In Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics, online, August 2021.

Stephane Aroca-Ouellette, Cory Paik, Alessandro Roncone, and **Katharina Kann**. PROST: Physical Reasoning of Objects through Space and Time. In Findings of the 59th Annual Meeting of the Association for Computational Linguistics, August 2021.

Yoshinari Fujinuma, Jordan Lee Boyd-Graber, and **Katharina Kann**. How Does Multilingual Pretraining Affect Cross-Lingual Transferability? In Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics, Dublin, May 2022.

Zhou, G., **Moulder, R.**, Sun, C., & D'Mello, S. (In-Press). Investigating Temporal Dynamics Underlying Successful Collaborative Problem-Solving Behaviors with Multilevel Vector Autoregression. Educational Data Mining.

Kristy L. Daniel,Myra McConnell, Anita Schuchardt, **Melanie E. Peffer**. Challenges facing interdisciplinary researchers: Findings from a professional development workshop. April 19, 2022. https://doi.org/10.1371/journal.pone.0267234

Stephane Aroca-Ouellette, Cory Paik, Alessandro Roncone, and **Katharina Kann**. PROST: Physical Reasoning of Objects through Space and Time. In Findings of the 59th Annual Meeting of the Association for Computational Linguistics, August 2021.

Yoshinari Fujinuma, Jordan Lee Boyd-Graber, and **Katharina Kann**. How Does Multilingual Pretraining Affect Cross-Lingual Transferability? In Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics, Dublin, May 2022.

Zhou, G., **Moulder, R.**, Sun, C., & D'Mello, S. (In-Press). Investigating Temporal Dynamics Underlying Successful Collaborative Problem-Solving Behaviors with Multilevel Vector Autoregression. Educational Data Mining.

ICS Presentations!

Cinnamon presented at the 84th Annual CPDD Conference in Minneapolis, MN as part of a symposium: *Dose-Dependent Subjective Effects of THC and Cannabis Concentrates: From Naturalistic Investigation to Population Analysis.* The title of her talk was *Cannabis Concentrates: Cannabis Exposure & Intoxication.*

Robert Moulder presented at the first international gathering of SWORD Health Associates in Porto, Portugal. He presented on *Longitudinal data modeling of multisite pain trajectories.*

Robert Moulder and **Sidney D'Mello** presented at the first conference on Attunement in Interlocken, Switzerland on *Multimodal Synchronization in Collaborative Problem Solving: A Network Approach.*

Angela Bryan presented her poster: *Associations of Cannabis Use to Insulin Sensitivity, Physical Activity and Diet: Implications for Obesity & Cannabinoid Exposure* and Laurel Gibson's poster: *Subjective Effects After Acute Ad Libitum Administration of Oral Cannabis in a Naturalistic Setting* at The 32nd Annual International Cannabinoid Research Society: Symposium on the Cannabinoids in Galway, Ireland.

Alatorre, I., Wohldmann, E. L., & **Healy, A. F.** Reading vs. Generating Quantitative Information: Applications to Learning and Retention of Calorie Information. Poster presented at the Annual Meeting of the Western Psychological Association, Portland, OR, April 28, 2022.

Healy, A. F. Discussion of A. F. Osth & M. J. Hurlstone (2022), "Do Item-Dependent Context Representations Underlie Serial Order in Cognition?" Invited paper presented at the 18th Context and Episodic Memory Symposium (CEMS), Philadelphia, PA, May 12, 2022.

Healy, A. F. Discussion. Psychonomic Society Leading Edge Workshop Advancing Cognition Through Adversarial Collaborations Seeking Synthesis: A Paradigm Shift? Virtual, September 15, 2021.

Healy, A. F. Discussion. Symposium IV: Advancing Cognition Through Adversarial Collaboration: The Case of Working and Long-Term Memory (Leading Edge Workshop). Paper presented at the 62nd Annual Meeting of the Psychonomic Society, Virtual, November 6, 2021.

Healy, A. F. Principles of expertise for skill learning: Complications and simplifications. Invited address for receipt of both the 2019 Division 21 Franklin V. Taylor Award and the 2021 Division 3 Lifetime Achievement Award. Paper presented at the 129th Annual Convention of the American Psychological Association, San Diego, CA, August, 2021 (virtual).

Healy, A. F., Paron, M. D., & Kahana, M. J. Temporal dynamics of order reconstruction. Poster presented at the 18th Context and Episodic Memory Symposium (CEMS), Philadelphia, PA, May 12, 2022.

ICS Student Publications!

Chandler, C., Foltz, P. W., & Elvevåg, B. (2022). Improving the Applicability of AI for Psychiatric Applications through Human-in-the-loop Methodologies. Schizophrenia Bulletin.

Janghee Cho "Design for Domestic Uncertainty: Envisioning Future Technologies in the Work-From-Home Era that Support Reflective Practices" Designing Interactive System (DIS) 2022 Doctoral Consortium

Janghee Cho, Samuel Beck, and Stephen Voida "Topophilia, Placemaking, and Boundary Work: Exploring the Psycho-Social Impact of the COVID-19 Work-From-Home Experience" Proceedings of the 2022 ACM Conference on Supporting Groupwork

Janghee Cho, Tian Xu, Abigail Zimmermann-Niefield, and Stephen Voida "Reflection in Theory and Reflection in Practice: An Exploration of the Gaps in Reflection Support among Personal Informatics Apps" Proceedings of the 2022 CHI conference on human factors in computing systems 2022

Gibson, L.P.*, Gust, C.L.*, Ellingson, J., YorkWilliams, S.*, Sempio, C., Klawitter, J., Bryan. A., Hutchison, K.E., & Bidwell, L.C. (2021). Investigating sex differences in acute intoxication and verbal memory errors after ad libitum cannabis concentrate use. Drug and Alcohol Dependence. PMID: 33866072

Gibson, L.P.*, Karoly, H.*, Ellingson, J.M.*, Klawitter, J., Sempio, C., Squeri, J., Bryan, A., Bidwell, L.C., Hutchison, K. E. (2021). Effects of cannabidiol in cannabis flower: implications for harm reduction [press release]. Addiction Biology. https://doi.org/10.1111/adb.13092

Sommer, S., Graville, C., Polman, J., Rubin, A., Tran, T. (2022) Developing Critical, Contextualized Data Agency through Educational Data Journalism. 2022. Proceedings of the 16th International Conference of the Learning Sciences - ICLS 2022. Hiroshima, Japan: International Society of the Learning Sciences.

Suresh, A., Jacobs, J., Perkoff, M., Martin, J. & Sumner, T., (2022, accepted). Fine-tuning Transformers with Additional Context to Classify Discursive Moves in Mathematics Classrooms. 17th Workshop on Innovative Use of NLP for Building Educational Applications (BEA 2022)

Suresh, A., Jacobs, J., Harty, Perkoff, M., Martin, J. & Sumner, T., (2022, accepted). The TalkMoves Dataset: K-12 Mathematics Lesson Transcripts Annotated for Teacher and Student Discursive Move.13th Edition of its Language Resources and Evaluation Conference (LREC 2022).

Suresh, A., Penuel, W., Jacobs, J., Martin, J. & Sumner, T., (2022, abstract accepted, book chapter in progress). Using AI Tools to Provide Teachers with Real-Time Feedback on their Classroom Discourse Patterns. AI-based Assessments in STEM Education.

ICS Student Presentations!

Charleen presented a poster entitled: Sex-Dependent Differences in Acute Objective and Subjective Intoxication Among High Potency Cannabis Flower Users at the 32nd Annual International Cannabinoid Research Society: Symposium on the Cannabinoids in Galway, Ireland.

Renée presented her poster: Cannabis Use Patterns, Perceptions, and Related Health Outcomes Among Spanish Speakers in the United States and Internationally at the 32nd Annual International Cannabinoid Research Society: Symposium on the Cannabinoids in Galway, Ireland.

Renée also presented Cinnamon Bidwell's poster: Daily Association with Cannabis Use and Sleep Quality in Anxious Cannabis Users at the 32nd Annual International Cannabinoid Research Society: Symposium on the Cannabinoids in Galway, Ireland.

ICS Centers' Updates

**inquiryHub (iHub) had a significant presence at the annual conference for the National Science Teaching Association in Chicago July 21-23, 2022. The conference hosted thousands of science teachers from across the US. The team presented four sessions, including:

- Inclusive Grading of 3D Science
- iHub Chemistry Overview
- 3D Assessment that Leverages Interest and Identity
- Using CODAP to Analyze Data with inquiryHub Biology

The 5D Assessment Project is beginning a fall course on Tuesday evenings with fifty rural participants in 13 states in two phases. The project is led by Bill Penuel and Kerri Wingert at ICS and Abe Lo at BSCS Science Learning.

inquiryHub (iHub)

We welcomed Dr. Sara Cooper to our team! Sara joined iHUB in November 2021 as the coordinator for joint projects with CU Boulder's 5D Assessment teams and the Learning Policy Institute's State Performance Assessment Learning Community. Current projects include; District Assessment Toolkit for Student-Centered Assessment Systems, 5D Master's Assessment Course, ILC-SPA-LC joint learning community, Washington Equitable, Curriculum-Anchored Assessment System, and iHUB assessment development.

She has over fifteen years of experience as an educator in formal and informal settings ranging from elementary to college-level. As a former state department of education science specialist, Sara has a deep understanding of the opportunities and challenges related to systemic and systematic educational change. Work in multiple roles has allowed her to evaluate and develop instructional materials, engage educators in high-quality professional learning experiences centered on instructional shifts and 5D assessment, and to coordinate science implementation within a variety of local and state system contexts. She cares deeply that our educational systems prepare students for their futures and that education is done with students, not to them. In her spare time, she enjoys playing with her dogs, puzzles, 'making things', and spending quality time with her family.

INC

The Intermountain Neuroimaging Consortium (INC) had a busy year as we grew our collaborations with industry groups, expanded our data and analysis service, and continued building out our INC internship (INCternship) program for undergraduates. Keep reading to learn more about what INC staff has been up to.

Scanning Services: In addition to collecting data for academic research studies, we are working with more industry groups who are using our system to advance applied research projects. We upgraded the scanner's software level last summer to facilitate the latest advancements from Siemens (our scanner manufacturer) and other sequence developers to enable us to meet more of our clients' needs. We have numerous new research sequences, including MR Fingerprinting, an exciting new sequence that only three other scanners in the world have the ability to run.

Data and Analysis Services: The INC data and analysis team was busy piloting a new data ingestion, data analysis, and data sharing tool called Flywheel. This tool was rolled out for everyone's use in July 2022! In addition to building out our on-premise instance of Flywheel, we added two more containerized analysis pipelines (one for functional MRI and one for Diffusion Weighted Imaging), and held four trainings (BIDS Conversion, Working with Large Datasets, Using AWS and Datalad for Neuroimaging, Surface Based Statistical Analysis with fMRI).

INCternship Program: This past academic year, the INCternship program thrived as all of the INCterns hired in February of 2021 were trained and scanning independently by August. The INCterns then spent the academic year conducting existing study protocols as well as assisting in the implementation of new study protocols such as CBDx. The INCterns engaged in various professional development opportunities including increased involvement with the ICS Inclusion, Equity, and Diversity Committee (IDEC), and presenting at the Department of Neuroscience and Psychology's Undergraduate Research Day (photo below). The INCterns continue to take on additional leadership roles and are furthering their relationships with researchers and their study teams. The construction of the data analysis internship pathway for the INCterns is nearing completion, and the INCterns are looking forward to piloting this expansion to the program. We would like to congratulate our very own Abigail Adams for graduating in Spring 2022 and wish her the best of luck as she continues her journey in research at Mt. Sinai in New York. We would also like to welcome our two newest INCterns, Laura Whited and Adriona Salgado. They were officially hired in June, and we are very excited to introduce them to the INC and ICS communities. In the upcoming semester, the INCterns have various independent and team projects they hope to implement and are excited to continue to develop the INCtern program. The INCterns are beyond grateful for all they have been able to learn and their continued opportunity to work with high caliber research labs.

Year 2 has been exceptionally busy and productive for the **NSF AI Institute for Student-AI Teaming (iSAT)**. Continuing to fulfill iSAT's mission of elevating artificial intelligence (AI) from an intelligent tool to a social, collaborative partner in the classroom, and of creating equitable and socio-collaborative learning experiences for all students, the iSAT team is starting to hone in on what capabilities the AI Partner should have from both the students' and teachers' perspectives. Three of iSAT's achievements are highlighted below, but please visit their website for all the latest up-to-date information!

iSAT

A Metaphorical Sprint

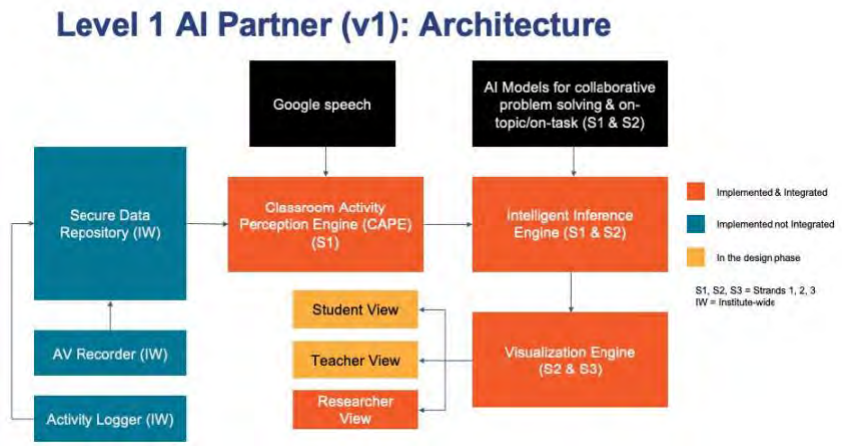
During the first quarter of Year 2, iSAT's researchers planned a three-day immersive and in-person Design Sprint to reexamine their current Partner metaphors (i.e., sheepdog, shepherd, guide) to create metaphors that better develop a shared vision for equitable, collaborative learning and a shared understanding of the AI Partner's technological capabilities. The iSAT Design Sprint successfully led to three metaphors (1) Community Builder, which supports students in developing trusting collaborative relationships with each other; (2) Augmenter, which support teachers and students by helping relay information exchanges through an interface; and (3) Interactive copilot that supports task progress and collaboration by providing guidance and facilitating small group interactions. One outcome of the ongoing Design Sprint Student Forum has been the development of conjecture maps for each metaphor and the culmination of a combined conjecture map. The Strands continue to engage with these metaphors during their work with iSAT, including the shaping of Strand 1's planning for AI interactions with students and teachers, and Strand 3's engagement with youth about these metaphors during the Learning Futures Workshop.

Data, Data, and more Data

Overcoming many challenges related to data collection, a team of 24 staff and research volunteers across stands were able to successfully collect about 450 hours of high-quality audiovisual recordings from around 500 students and 15 teachers who implemented the Sensor Immersion curriculum unit in two school districts.

While collecting audiovisual recordings, researchers noted student collaboration and key events occurring in the classroom. The data collection team has been hard at work curating and cataloging the data to be used in research - helping the AI Partner make sense of this data to function as an interactive agent that can listen, analyze, and facilitate student collaboration and learning. In an effort to improve and support data collection, iSAT, along with their development partner Curve10, designed, implemented, and tested the iSAT Audiovisual Recorder 1.0 (for both iOS and Android supported tablets), which records and streams audio and video to secure cloud-based servers, chunking the data streams into small batches to avoid bandwidth issues. Testing of the recorder for use in classrooms is underway.

AI Partner V1



As a first task to test the data processing pipeline, develop individual components, and refine coordination across the strands and the technical infrastructure group, iSAT implemented an initial proof-of-concept of the Level 1 AI Partner. The partner encompassed acoustic processing, speech recognition, speech diarization, followed by content, conversation, and collaboration analysis, along with an interactive display. The interactive display, driven by the visualization engine, is designed to display different relevant metrics to students, teachers and/or researchers for tracking student collaboration. At present, the prototype is being used to conceptualize and test different ways that information may be displayed to stakeholders. The current prototype illustrates multiple student video and audio streams running simultaneously, with metrics on the quality of the audio signal, the amount of conversation being generated, a word cloud of the key information being convey by each team at that time, and metrics on the collaboration. Overall, the development of the AI Partner was a major effort involving multiple working groups across multiple organizations towards a common goal and demonstrates iSAT's underlying collaborative atmosphere.

Congratulations to Renée Martin-Willett for receiving the CU REACH Graduate Cannabis Research Scholar Award! (See *Student Special Mentions and Awards* in this newsletter for more info on this award!).

Laurel Gibson was previously awarded CU REACH's graduate Cannabis Research Scholar Award. Her recently launched SPACE ("Study on Physical Activity and Cannabis Effects") has gained quite a lot of press.

CU REACH

Moni Fleshner received on behalf of CU REACH a donation from Charlotte's Web to support cannabis research in the Stress Physiology Lab in the Department of Integrative Physiology. It is anticipated that this research program will inform future clinical initiatives to better understand how specific ratios of cannabinoids and different delivery formats are effective at supporting improved sleep quality and instilling healthier sleep architecture in humans.

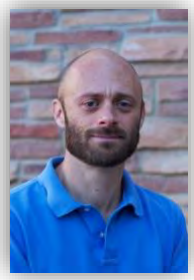
Cinnamon Bidwell & Nolan Kane, CU REACH Director and Affiliated Faculty, respectively, were both awarded 2022 ICR grants. Research project announcements found here.

CU REACH Director Cinnamon Bidwell and Founder Kent Hutchison, along with Angela Bryan and the Mobile Laboratory, were featured in a recent NBC News interview "University team creates mobile lab for medical research on marijuana".

Update from the Center for Research on Training

The following projects with current connections with the Center for Research on Training (CRT) reports the these activities: Matt Hallowell (Civil Engineering), Paul Goodrum (CSU), Tom Yeh (Computer Science) and Matt Jones (Psychology) are continuing their NSF-funded collaboration studying spatial cognition and trust in AI among construction trades workers.

Matt Jones and Psychology PhD student Clara Elizabeth are studying the connections between Bayesian and heuristic models of human learning and decision making, also funded by NSF. Star high school students Eshaan Sharma (Parker) and Allison Xin (Broomfield) are interned on this project over the summer.



Joel Stoddard (Anschutz Psychiatry), Matt Jones, and recent Psychology PhD graduate Sam Paskewitz are continuing their application of models of human learning to understanding social anxiety disorders and the

mechanisms of exposure therapy, funded by NIMH and AB Nexus. Finally, CRT director Matt Jones has begun a visiting position at Google Brain to incorporate principles of human learning in artificial systems to help bring about the AI singularity.

Additionally, interest has recently rekindled on undergraduate education. The current focus is the incentive structure for professors and instructors. What are the consequences when a university's personnel evaluations are based almost entirely on subjective student ratings, and these ratings are determined almost entirely by effort required and grades received? In particular, what trajectory can we predict for the quality and rigor of undergraduate education? Several years of data on student preparation and average grades in a large department at CU bear out our predictions.

ICS Colloquia Update

After four semesters of offering virtual colloquia through the worst of the pandemic, ICS is now offering multi-platform colloquia: **live in our largest room in MUEN D428/D430 and also on Zoom!**

Please join us in person (snacks provided!) or over Zoom to hear from visiting researchers and our own folks!

Zoom: https://cuboulder.zoom.us/j/97658438049
Meeting ID: 976 5843 8049

Find the more current colloquia schedule here and on the left side of homepage of the ICS website

Past virtual colloquia recordings are archived for your viewing.

ICS Outreach, Dissemination, Diversity Efforts

Human Resource (HR) Personnel Administration and Employment Resources

1. Since launching the Jobs & HR website section in 2021, new content has been added to support the onboarding of new employees as well as providing resources for current employees.
2. Be sure to check out the following featured content:
    a) Research Career Ladders for Research Associates & Professional Research Assistants which continue to develop.
    b) New Employees: what you need to know
    c) CU Boulder HR resources
    d) Campus Support resources
    e) ICS Diversity & Inclusion resource
    f) Reporting concerns, comments, incidences

IDEC

ICS' Inclusion, Diversity, & Equity Committee (IDEC) is a safe and welcoming community space with opportunities to take actions to build a better Institute. **Learn more about our work.**

1. The student-generated and community supported initiative to create an anonymous way to report negative and positive incidents and provide feedback to ICS is near completion and launch. Learn more about the Anonymous Concerns and Comments Reporting system on our website.
2. Be sure to bookmark RIO's Diversity landing page. It features a campus-wide calendar of events for diversity, inclusion, and equity activities.
3. Join our weekly gatherings!
4. Fall scheduling is in the works. Keep an eye on https://www.colorado.edu/ics/diversity for the latest updates to meetings days and times.
5. Email ICS_IDEC@colorado.edu for Zoom links

Coming up for the 2022-2023 academic year: IDEC will begin exploring, identifying, clarifying ICS's institutional and systemic culture, values, codes of ethics, and DEI behavioral expectations. With input from the ICS community, IDEC hopes to codify what inclusive community looks like in action, then support the leadership to create educational programming and Standard Operating Procedures to ensure accountability to inclusive action.

RIO Visual Assets Project

ICS is part of the Research and Innovation Office (RIO), which serves as our administrative unit much like a College to which a department belongs. All 12 Institutes under RIO participate in an Institute Communicators working group, created to generate knowledge sharing and collaborative work. The latest Institute Communicators project led by RIO's Chris Yankee is the Visual Assets Project (VAP). Starting in June, VAP began capturing drone footage of Institutes' physical buildings to be used on website, research presentations, social media and other promotional purposes. The second stage of the project took place in July and August where a video crew recorded short film and photos of labs and researchers in each Institute. After editing, these assets will be shared on various platforms.

ICS Dissertation Spotlights

Chelsea Chandler

Methods for Multimodal Assessment of Cognitive & Mental State
Advisors: Peter Foltz and Jim Martin

Chelsea Chandler (Department of Computer Science) researched natural language and speech processing methods for the detection and longitudinal tracking of psychiatric diseases and neurodegenerative disorders. As part of her dissertation research, she developed a multidisciplinary framework for the automated

Abhijit Suresh

Automating Feedback to Improve Teachers' Effective Use of Instructional Discourse in K-12 Mathematics Classrooms
Advisor: James H. Martin

Abhijit studied ways to provide automated actionable feedback to K-12 mathematics teachers on their effective use of classroom discourse. Over the past decade, robust literature on teacher "talk moves" that promote student argumentation has emerged, especially in mathematics education. However, providing

assessment of psychiatric mental state that was sufficiently accurate and explainable to nurture trust from patients and clinicians, and also longitudinal and multimodal to model the dynamic and multifaceted nature of mental disorders. She additionally confirmed the viability of such a framework for the purpose of the early detection of Alzheimer's disease and Mild Cognitive Impairment in an elderly population.

Chelsea would like to thank her advisors Peter Foltz & Jim Martin for their support and advice throughout graduate school, as well as her committee members Martha Palmer, Katharina Kann, and June Gruber, and her collaborators Brita Elvevåg, Catherine Diaz-Asper, Terje B. Holmlund, and Alex S. Cohen for their invaluable and diverse perspectives on her research.

Next up, Chelsea is continuing her research in the Institute of Cognitive Science as a Research Scientist. She plans to focus on ethics and transparency in the development of AI methods that incorporate explainability and computational safeguards, and will be harnessing aspects of participatory design for the creation of human-in-the-loop enabled tools for clinical decision making.

teachers with detailed feedback about the talk moves utilized in their lessons requires considerable human expertise.

Abhijit's work is situated in the research and development of a cyberinfrastructure for TalkBack - an innovative application to address a significant challenge in education: providing teachers with immediate and actionable feedback on their use of instructional practices. The study entails developing deep learning models for Natural Language Processing (NLP) to generate feedback for teachers on their effective use of classroom discourse. The proposed cyberinfrastructure has already yielded new avenues for research at the crossroads of NLP and education to provide structured professional learning opportunities that promote discourse-rich pedagogy.

Abhijit successfully defended his thesis in May 2022 and would like to thank his Ph.D. advisor, James H. Martin, and committee members Tamara Sumner, Jennifer Jacobs, Wayne Ward, Chenhao Tan, and Katharina Kann for their support. He feels grateful to have had the opportunity to work closely with Mckell carter and the SNaG lab. He also appreciates his fellow lab members from Sumner Lab and the ICS staff, Alan Dale, Jean Bowen, Lakshmi, Yasko, Ellen Mackenzie, and Cat Latzer, for their support, time, and guidance through his Ph.D. journey. He also would like to thank his department graduate advisor Rajshree Shrestha for her constant guidance.

Abhijit has accepted a role as Machine Learning Engineer at Reddit working with Ads prediction team where he will apply skills learned during his time at CU.

ICS thanks Abhijit for his contribution as an Executive Committee student representative.

ICS New Graduates

Triple Combined PhD	Combined PhD
• **Abhijit Suresh** – *Computer Science, Neuroscience & Cognitive Science*	• **Chelsea Chandler** – *Computer Science & Cognitive Science* • **Shirley Huang** – *Speech, Language, & Hearing Sciences & Cognitive Science*

Interdisciplinary Undergraduate Certificate in Cognitive Science	Interdisciplinary Graduate Certificate in Cognitive Science
• **Namita Pasupuleti** - *Computer Science* • **Josh Primus** - *Linguistics* • **Liam O'Dowd-White** - *Speech, Language, Hearing, Sciences* • **Paige Herbst** - *Speech, Language, Hearing, Sciences* • **Mae Ruppert** - *Speech, Language, Hearing, Sciences* • **Laura Vacek** - *Speech, Language, Hearing, Sciences* • **Ruja Hersh Parikh** - *Psychology* • **Baylie Rushing** - *Psychology*	• **Farron Straitz** - *Linguistics*

ICS Student Awards & Special Mentions

Michael Joseph Schneider, PhD student, Computer science
His paper, 'Scaffolding the Debugging Process in Physical Computing with Circuit Check' was nominated for Computer-Supported Collaborative Learning (CSCL) Best Design Paper for the International Society of the Learning Sciences 2022 Annual Meeting

Check out his paper here!

Janghee Cho, PhD Candidate, Information Science
Congratulations for being awarded the Meta PhD Research Fellowship (AR/VR Future Technologies) 2022-2024 (link)!

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ICS Student Highlight

Renée Martin-Willett was awarded a new Graduate Cannabis Research Scholar by Center for Research and Education Addressing Cannabis and Health (CU REACH) congratulations!

Cinnamon Bidwell, her advisor, wrote “Renée's proposal focuses on highly significant and novel research questions addressing psychobiological mechanisms underlying the overlap over substance use and mental health, and emphasizes research and training goals in the areas of diversity and equity in biomedical research. It’s so rare to have this kind of fellowship awarded so early in a graduate career! Renée's achievement is amazing - the ICS community is incredibly proud that a member of our team has been awarded this prestigious fellowship! “

ICS: Renée can you tell us about how your research for this fellowship is advancing equity, inclusion and diversity in research?

RM-W: My research program for the fellowship, and just in general, is focused on including groups that have been historically underrepresented in biomedical research. This isn’t just according to ethnicity, but also factors like gender identity or sexual orientation.

INC: How did this research come about?

RM-W: I have previously written papers with Cinnamon and others either working exclusively with underrepresented groups like South Asian refugees, examining qualitative data on perceived discrimination and micro aggressions among POC college students, reviewing the literature on microaggressions, plus calling for a more equitable approach to research design in cannabis research specifically. Given these foci, the sample for the fellowship will draw exclusively on folks from underrepresented groups who are also engaged with Cinnamon’s R01 on cannabis use and anxiety. Here is my bio for the lab in case it’s helpful: https://www.colorado.edu/center/cuchange/renee-martin-willett.

ICS: What will the study investigate?

RM-W: In addition to the primary goal of examining the relationship between anxiety, alcohol use, and the endocannabinoid system for these folks, it will also explore the role of perceived discrimination on outcomes like anxiety, drinking behaviors, and microbiome and inflammation biomarkers all towards understanding shared risk for disordered drinking behaviors and anxiety.

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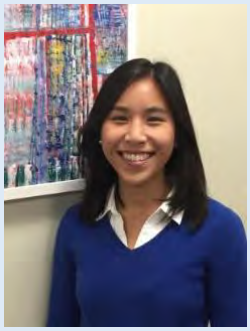
ICS Student Research and Travel Awards

https://www.colorado.edu/ics/graduate-programs/student-travel-research-awards

Summer 2021



Shirley Huang

SLHS

Travel Award: $500 to present her paper on Emotion Language Skills in Dual Language Learners at the American Speech-Language Hearing Association Convention

Alyssa Strickler

LING

Research Award: $500 to fund her dissertation research on sound change within an individual speaker's lifetime

Layne Hubbard

CS

Research Award: $500 for her dissertation research on ways to support young children's agency using a multimodal MindScribe Story Tree

Travel Award: $125 to present her work on reflective storytelling in Child-Robot interaction at the ACM Conference on Creativity & Cognition

Travel Award: $36 to present her paper on supporting children's agency in child-agent interactions at the ACM Conference on Conversational User Interfaces

Spring 2022

Michael Schneider

CS

Travel Award: $500 to attend and present a poster at SIGCSE 2022 to discuss his project called Circuit Check, to scaffold the debugging process for students

Research Award: $500 to fund various expenses related to his dissertation research focusing on examining classroom interactions to design tools to support students in debugging e-textiles

	**Janghee Cho** **INFO**	**Travel Award**: $500 to present his work on how reflection may be instantiated in commercial PI apps at the ACM CHI Conference on Human Factors in Computing Systems **Research Award**: $500 to fund various research expenses on his dissertation research which examines how digital technology may support remote workers' holistic wellness in the context of work from home
	**Abhijit Suresh** **CS**	**Travel Award**: $700 (International conference) to present his work on ways to automate feedback to math teachers on their instruction discourse at the 13th Edition of Language Resources and Evaluation Conference in Marseille, France
	**Michael Hoefer** **CS**	**Travel Award**: $500 to attend and present a paper and a poster at the ACM CHI Conference on Human Factors in Computing Systems (CHI 2022)
	**Andrew Mertens** **PSYC**	**Travel Award**: $700 (International Conference) to present his poster on parent-child interactions during play at the Creativity and Cognition conference in Venice.

HEADS UP STUDENTS – GET THE WORD OUT!

Let friends and colleagues know about our programs at ICS!

Contact email for ICS Student Programs: ICSPrograms@colorado.edu

All Undergraduate and Graduate Programs students need to APPLY to ICS certificate and degree programs before starting.

- Step-by-step process is outlined in the updated online links:
  - Graduate Programs
  - Undergraduate Programs

Students not with the 10 affiliated units/departments can apply to ICS programs!
Email ICSPrograms@colorado.edu

ICS Office, Administration, & Operations Updates

Operational Updates from Associate Director Alba Tuninetti:

The big news is that the **CINC Building remodel is in its very final stages**! The Bidwell lab has moved into the new space, even while we wait on the final small details. What a feat!

With the retirement of our esteemed payroll and finance associate Ellen MacKenzie, Zachary Kilday has assumed her role. Ellen and Zach worked together throughout the summer of 2022 to get him trained and he has taken over her role and duties as Ellen enjoys family and mountain time during her retirement! We have a new data entry specialist taking over from Zach – Hayley Bender, who has joined us now in October 2022. We will also be saying welcome to two new staff members later this month: another grant manager to support us as we grow, and our first large project business manager, to help manage our large project and their ever-evolving administrative needs!

On the administrative side of things, Anna and Tracey have also moved on from ICS and we have two new members of the admin team – Linda McCormick and Sunanda Singh, who are working with Jean to manage both the CINC and MUEN facilities, as well as other administrative duties.

Finally, Yasko Endo retired in early August 2022 to focus on her recovery from Post-Acute Sequelae COVID (Long COVID). She worked tirelessly as our communications specialist and IDEC liaison to ensure that opportunities, events, and outreach were shared and disseminated across all ICS levels. She will be sorely missed as part of the ICS team – Linda will be taking over her duties for updating the website and Alba will be temporarily taking over her newsletter duties (this current newsletter still very Yasko'ified, with Alba's sincere thanks to her!). Yasko still has access to her email (yasko.endo@colorado.edu) and would be happy to receive updates from the ICS community!

- **Make sure to check out the updated forms on the website**: all grant projects can access P-card Receipts and ICS Travel Request forms through the Forms section of the website. Questions about the forms can be directed to your Portfolio Manager.
- **Administrative staff are working a variety of onsite and remote hours**. Please check each staff member's Person Page on the website and to be safe, email the person to confirm their working location before heading out to CINC or MUEN.

2022-2023 ICS Executive Committee

Thank you to those who have stepped up to be part of the ICS Executive Committee this upcoming year! We welcome these new members:

1. **Joseph Polman** (Professor & Associate Dean for Research – ICS/School of Education)
2. **Jennifer Jacobs** (Associate Research Professor – ICS)
3. **Ellen Do** (Professor – ICS/ATLAS)
4. **Kayla Cormier** (Graduate Student – ICS/SLHS)

We are grateful to those who are stepping down this year. Thank you for your service, dedication, and participation!

1. **Al Kim** (Associate Professor – ICS/Psych & Neuroscience)
2. **McKell Carston** (Assistant Professor – ICS/Psych & Neuroscience)
3. **Quentin Biddy** (Assistant Research Professor – ICS)
4. **Ali Raza** (Graduate Student – ICS/CS)

Thank you to those who are continuing to serve this upcoming year:

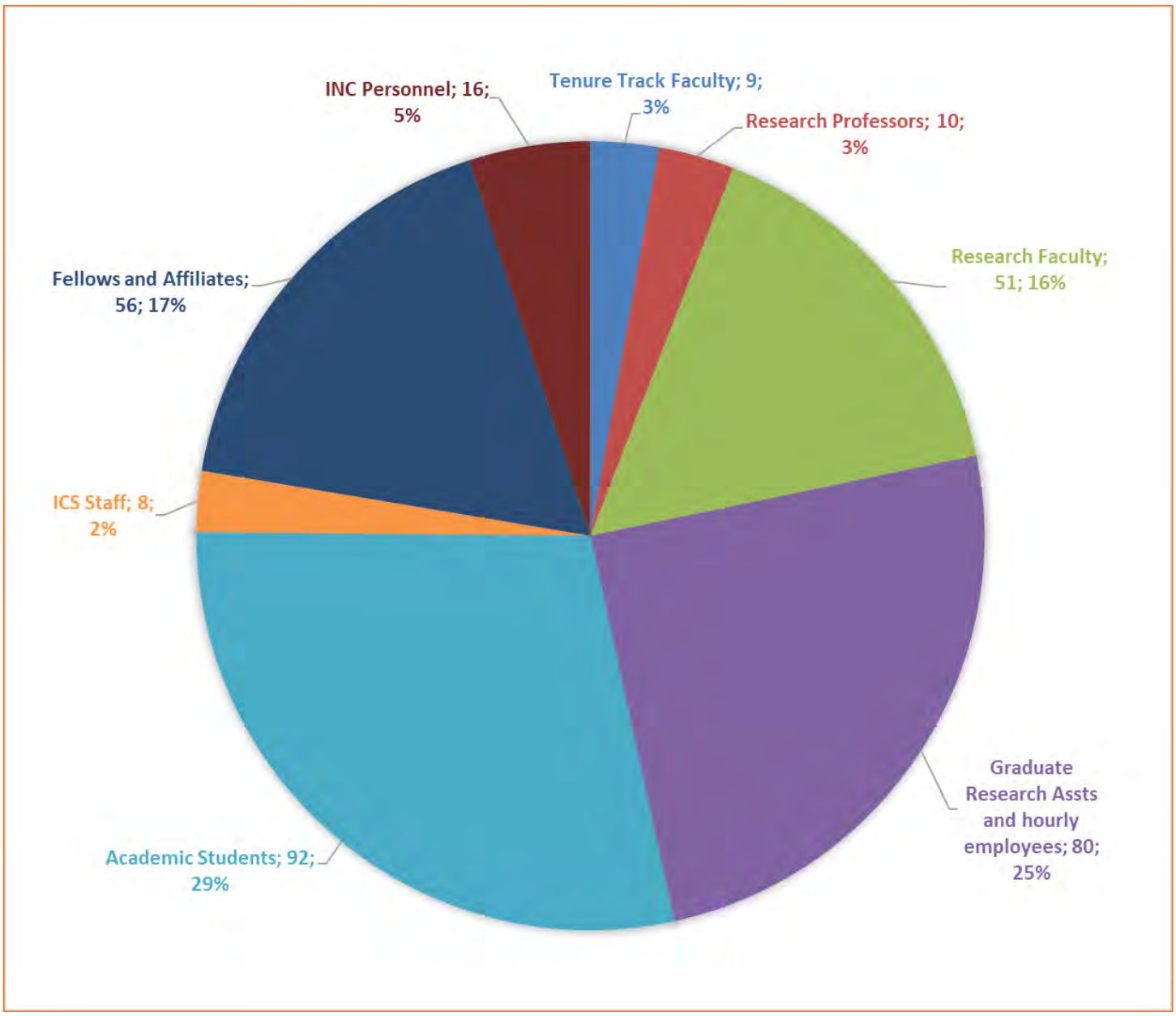
1. **Tom Yeh** (Associate Professor - ICS/CS)
2. **Eliana Colunga** (Associate Professor – ICS/Psych & Neuroscience)

Ex Officio members who will continue to serve, thank you for your leadership:

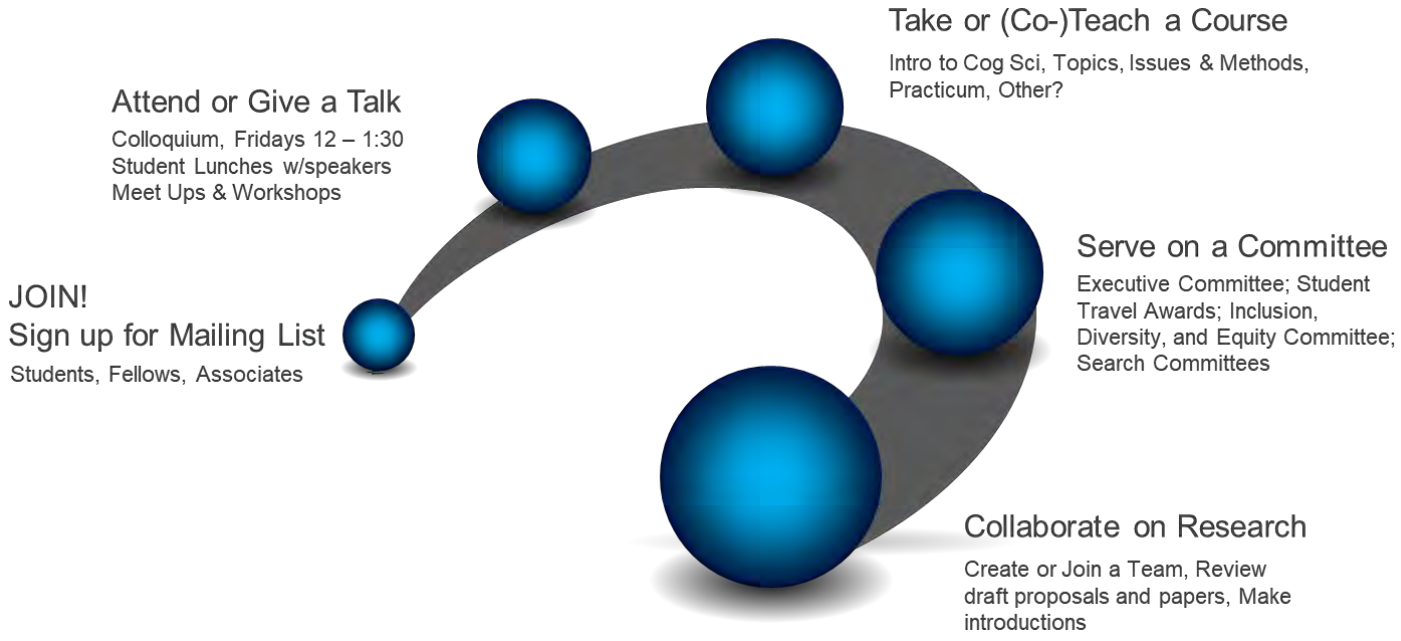
1. **Nicole Speer** (ICS/INC)
2. **Cinnamon Bidwell** (ICS/Psych & Neuroscience)
3. **Matt Jones** (ICS/Psych & Neuroscience)
4. **Alba Tuninetti** (ICS)
5. **Tammy Sumner** (ICS/CS)

ICS Community Growth

We are up to **322 members**, with the largest growth coming in GRAs and student hourlies, research faculty, and academic students. This is a **15% increase from Fall 2021!**



Get involved with ICS!



Give to ICS!

We need your help to sustain and grow our innovative research studies and initiatives and provide outreach programs to the public. Our Institute is almost entirely funded by research grants and donations. Your donations are particularly helpful in supporting critical pilot studies that build into larger scale research, graduate students, and early career scholars.

Your donations both large and small can also help the functioning of the following programs:

The ICS General Fund	**Supports pilot studies, graduate students, early career scholars.**
The CU Reach Fund	**Supports Research, Education, and Application in Cannabinoids and Health (CU REACH) multi-disciplinary center to expand the capacity for research, education, and application and become leaders in the study of cannabinoids and health.**
The ICS Building Community & Collaboration Fund	**Supports research collaboration events and functions associated with recruitment, outreach, and community building.**

Donations can also be made to specific programs such as faculty labs, centers, and special projects. We thank past donors for their generous contributions to the Institute!

Mission

The mission of the Institute of Cognitive Science (ICS) at CU-Boulder is to understand and enhance human cognition, learning, and development through the creation of interdisciplinary partnerships. ICS fosters rich scientific interchange across researchers from a broad range of disciplines including Artificial Intelligence, Linguistics, Psychology, Neuroscience, Computer Science, Philosophy, and Education.

Contact Us!

Check out our Contact Us page for more information!
https://www.colorado.edu/ics/about-us/contact-us

Jean Bowen, Office Manager: jean.bowen@colorado.edu

Tammy Sumner, Director: sumner@colorado.edu

Alba Tuninetti, Associate Director: alba.tuninetti@colorado.edu

University of Colorado **Boulder**