Lifetime Achievement Award in Research Presentation

Speaker: Vicki Anderson

Is research only about the science? A career studying early brain insult

4:30 - 5:25pm
Thursday, 2nd February, 2023
Pacific Ballroom E

Abstract:
The research landscape has changed dramatically over recent decades with the ever-growing opportunities facilitated by increasingly sophisticated technologies and statistical approaches, and complexity of governance and funding requirements, coupled with a relatively recent acknowledgement of the need to consider the impact of what we study and whether it addresses concerns that are shared by patients and consumers.
Over the past 20 years, the Melbourne Children's Brain and Mind team has followed children from the time of their brain injury as they have moved from infancy and childhood, through adolescence and into adulthood. With a backdrop of the myriad of changes in research approaches, over the life of this study, this presentation will describe the challenges and findings generated from our work and consider how key research questions have changed, whether the work has been impactful at a scientific and if it has impacted the outcomes of brain injury survivors.
Finally, given the critical importance of researchers, at any stage of their career, in the successful conduct of programs such as ours, learnings regarding ingredients supporting successful research careers will also be explored.

5 min. break

5:25 - 5:30pm
Thursday, 2nd February, 2023

Plenary B: The Pons is a Significant Neural Correlate of Affective Processing

Presenter: Tatia M.C. Lee

5:30 - 6:30pm
Thursday, 2nd February, 2023
Pacific Ballroom A

Abstract & Learning Objectives:
Research on the role of the Pons in affective processing has been scarce. Recent animal work has shown that the direct projection from the eyes to the dorsal raphe nucleus modulates affective behaviours. Our previous human work has confirmed a functionally analogous pathway between the optic chiasm and the Pons, which facilitates the processing of negative affective information. Our other studies have further identified that the Pons (1) works with the distributed corticolimbic system to shape an individual's affective states and reactivity and (2) responds to short-term meditation training to modulate affective processing. These findings offer significant insight into the role of the Pons in affective processing and regulatory mechanisms.
Upon conclusion of this course, learners will be able to:
1. Discuss the functional roles of the pons in affective processing
2. Recognize that the pons is a significant neural correlate of affective processing
3. List major neural correlates of the affective processing network

Student Liaison Committee (SLC) Student Social Event

8:00 - 9:30pm
Thursday, 2nd February, 2023

Palm Rooms 1-5 and Palm Lawn

CE Workshop 09: Cast Aside Traditional Notions of Statistical Significance, and Focus Instead on Characterizing the Magnitude of Effects that are Clinically or Scientifically Relevant

Presenter: Robert Ploutz-Snyder

7:20 - 8:50am
Friday, 3rd February, 2023
Town & Country Ballroom B

Abstract & Learning Objectives:
There is an ongoing debate among statisticians and discipline scientists about the consequences of our persistent, dogmatic reliance on evaluating all statistical results as meaningful if and only if "p<0.05," regardless of context. This was never the intended goal of Ronald Fisher, nevertheless scientists have adopted it as a convenience, and the decades long dependence on "p<0.05" has had important negative consequences. In this presentation, I review common misconceptions about interpreting p-values, why we should consider de-emphasizing p-values, and why scientists should rely more on practical, clinical, or scientifically meaningful differences over arbitrary cut-offs. I will present several different metrics for evaluating and reporting effect magnitude, and whether or not data support the null vs. alternative hypothesis, under the frequentist paradigm, how Bayesian methods can augment or replace frequentist analyses, and a few options that help to clarify how important a finding may be. Throughout this talk, I advocate that discipline scientists take charge of sharing scientific results that are not based merely on arbitrary p-value cutoffs and other default logic, but instead based on their content expertise, in light of all of the specific relevant aspects of experimental design and experimental data, balancing the consequences of Type I vs Type II errors appropriately, and focusing on characterizing effects, rather than dichotomizing research into only two categories of importance (significant vs. not).

Upon conclusion of this course, learners will be able to:
1. Discuss what p-values mean and how they are commonly misinterpreted.
2. Explain the leading arguments promoted by the American Statistical Association with regard to why science should carefully reconsider if and how p-values should continue to dominate our decisions about what research should be published, and how scientists should be evaluating its worth.
3. Apply new practices in how to evaluate and publish their own research, as well as how to evaluate research appearing in peer-reviewed journals, whether as consumers, reviewers, or editors.

CE Workshop 10: Advances in Event-Related Potential Methods for Assessing Clinical Populations

Presenter: Steven J. Luck

7:20 - 8:50am
Friday, 3rd February, 2023
Pacific Ballroom A

Abstract & Learning Objectives:
Event-related potentials (ERPs) have been used to examine perceptual, cognitive, motor, and affective processes for over 50 years. Although newer techniques provide greater neuroanatomical specificity, the excellent temporal resolution and ease of acquisition of ERPs continue to be highly valuable. In addition, continued methodological refinements have made it possible to answer progressively more sophisticated questions using ERPs. In this presentation, I will describe several key methodological improvements that are now in widespread use or are on the verge of becoming widely used. This will include improved recording methods, such as innovations in electrodes that allow both fast and low-noise EEG acquisition. It will also include EEG preprocessing methods that minimize artifacts and increase the signal-to-noise ratio of the ERPs. Finally, it will include multivariate pattern analysis methods that can be used to "decode" what a participant perceives and stores in working memory. Together, these new methods have dramatically increased the information that